ELECTRICAL WEST

• FEBRUARY 1935 •

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TELLING SOUTHERN CALIFORNIA

Every person in Southern California who can see or hear will receive a continuous series of messages from this Company during this year. The most comprehensive program we have ever prepared is now being carried through.

Newspapers with an agggregate circulation of nearly two million copies will be used regularly. Magazines and class publications will carry specific information into homes, offices, stores, factories and agricultural districts. Special features will be mailed monthly or oftener to nearly half a million customers. Radio listeners will hear us in their homes, and street traffic will meet us in outdoor display.

The plan is definite and scientific. We can not sell electrical energy until after someone else has made and sold the equipment to use the energy. Therefore our advertising program is designed to help everyone engaged in the electrical industry—manufacturers, jobbers, dealers, contractors and repairmen, as well as present and prospective customers. Join us in this program of mutual co-operation.

SOUTHERN CALIFORNIA EDISON COMPANY LTD.

Edison

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ELECTRICAL WEST

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• As FINE a spring tonic as can be recommended is careful perusal of the figures, tables and sales plans set forth in the following pages. The accomplishments of the industry in 1934 and its objectives for the post-depression year of 1935 arouse real enthusiasm for the future. After the enforced diet for the past five years, the program is just the thing to build the strength and vitality of the patient rapidly.

• FEDERAL PROJECTS have provided both respectable amounts of work and business for the West and a series of headaches for those who fear governmental competition not only in the production and sale of power but also in the merchandising of electrical equipment. Those interested in a complete and analytical discussion of the federal power program embodied in Grand Coulee, Bonneville, and Boulder Dam will find the facts and data on pages 24 to 36.

• EFFECTIVELY DISPELLING the bugaboo of surplus capacity, the sales plans of individual companies and various appliance societies are worthy of serious study. In these days of mumbo-jumbo economics, aggressive selling may seem a primitive idea but this is one time that the old fashioned remedy is better than the advice of specialists. As proof, scrutinize the sales acomplishments of 1934 on page 39.

• INSPIRATION FOR a profitable business year will be found in the statements by executives from every branch of the industry in "Opportunities For 1935." The universal optimism with which our leaders are attacking their problems should be encouraging to every one connected with the electrical business. Re-established confidence in the future is the bed-rock foundation upon which to build new standards of public service.

• FACTS AND STATISTICS, less dry this year than for the past few because they reflect decided business improvement, make an unpalatable diet without the sauce of a little humor. This month Electra's Husband discusses the Facts of Life and Bill Jones waxes philosophical about the gentle art of managing salesmen in "2 Plus 2." As usual their comments are thoroughly enjoyable and not a little provocative.

Sales Talks that SOLD Appliances...

CASE HISTORY #2 Selling an I·E·S· Lamp-

BILL SMITH, master salesman, is always on the alert for profitable lines. That is why he has stocked the new I.E.S. lamp and is p u s h i n g those units at every opportunity. By capitalizing on the advertising campaigns for Better Light— Better Sight and tying in with the local power company's advertising and home lighting demonstrations, Bill knows that he can build a profitable sales volume. Watch him go into action and SELL a study lamp to a lady who has just entered the store.

BILL: (walking to meet her) "Good afternoon, may I help you?"

PROSPECT: "I would like to look at a bridge lamp."

BILL: "Certainly. Will you please step this way. I supose your lamp will be used for reading and general room illumination too?"

¶ Bill starts by investigating the conditions which prompted her inquiry. Knowing the prospect's requirements is essential.

PROSPECT: "Yes. It will probably be used most of the time for reading. Have you something that will look well in a room at not too high in price?"

¶ Bill discovers that his prospect really wants to buy home illumination and he knows that she can buy more for her money if he sells her an I.E.S. lamp. Also he picks up the valuable clue that his prospect came into the store looking for an inexpensive item. Immediately he plans his sale to impress on the customer's mind the value and real economy in the long run of buying good lighting.

BILL: "We have a wide assortment. If you want a safe, comfortable light for reading, I can recommend this lamp most highly. *(Bill snaps on an I.E.S. Floor Lamp in the display.)* This is called the I.E.S. lamp. The initials stand for 'Illuminating Engineering Society'. This is the first piece of lighting equipment ever to receive the endorsement of that scientific body of engineers and eyesight specialists. It was designed from specifications developed by that society for a reading and study lamp that would be kind to your eyes and decorative to your home. It's a handsome lamp, isn't it?"

PROSPECT: "Yes, it is but it isn't just what I had in mind. Is it so much better than this type here?" *(She indicates a conventional bridge lamp.)*

BILL: "I see that you are a good judge of quality. That's why I know you will appreciate the several reasons why this type of lamp is recommended by illumination experts. Our eyes are best adapted for distant vision in normal daylight. With our modern life, they are required for reading, sewing, and other close, fine work which not only is performed for long periods, but also under artificial light. In spite of being an extremely delicate mechanism, the eye can adapt itself to this fine work without strain if sufficient illumination is provided. Under a poor light the eyes become strained and continual eye strain will result in permanent injury. It's hard to realize, isn't it, that over 30 per cent of the college students are afflicted with eye defects, most of which are traceable to reading under the wrong kind of light during childhood?"

PROSPECT: "Is that so?"

BILL: "You know, I dare say, that eye strain causes headaches, nervousness or physical fatigue. It takes almost as much energy to sit still and read under the wrong kind of light as it does to perform manual labor. This lamp is designed to give you the right kind of light. It will safeguard your eyes, conserve energy and protect your health."

PROSPECT: "Of course I want to have a safe reading light but I don't know that I like my room with as much light as this unit gives. We always leave the center fixture off and read under the individual lamps around the room."

¶ The prospect is definitely interested in safe light but her objection is one common to many women who have preferred very subdued lighting in their homes. Bill uses this opportunity to explain the danger of glare or "spot" illumination.

BILL: "I know how you feel, yet I wonder if many of us realize that we have come to that conclusion about light because our eyes are constantly drawn toward a bright glaring light source. Because we tire rapidly under such a light, unconsciously we decide that we don't like it. This also is true if you read under a bridge lamp with the rest of the room dark. The contrast requires continual adjustment of the eye which rapidly becomes fatigued. You probably have noticed that."

PROSPECT: "Yes, I have."

BILL: "There is another reason, too, why more illumination is desirable. You desire to bring out the color combinations, patterns and styles of your rugs, furniture, and drapes to make your rooms warm, pleasant, comfortable places for your family and guests. The additional light this unit throws on the ceiling not only makes other lamps in the room appear softer and actually become decorative, cheerful color spots, but also every color in your rugs or furnishings comes to you in its full richness."

Prospect: "How much is this lamp?"

¶ Sensing that his prospect wants the unit, but that its price may be more than she intended to pay, Bill sums up all of the advantages she will receive before mentioning the price. In this way he hopes to show her that she is getting more value than the price asked.

BILL: "This beautiful lamp, which is scientifically designed to give years of service and which will safeguard the vision of the family and provide many years of reading comfort, sells for only $11.95."

PROSPECT: "Oh, that is much more than I intended to pay. Haven't you anything cheaper?"

BILL: "Considering the eye comfort and protection guaranteed by the scientific design of this lamp are you sure you want a less expensive type which would not provide the soft, high intensity light necessary to prevent eye strain? Such cheap lamps are apt to be so much more costly in the long run. You know, we have only one pair of eyes. They mean so much to us that nothing is really too good for their comfort and good health. Don't you agree that the few extra dollars required to buy this high quality lamp would be a good investment in eye protection?"

¶ Bill shows the prospect that the lamp is worth the money because it gives real protection and eye comfort—something she can't buy in any low-priced lamp.

PROSPECT: *(doubtfully)* "Yes, I suppose it is, but this lamp must use more electricity. Heaven knows our bill is high enough as it is."

¶ Price objection is overcome but there is still an element of indecision manifested by cost of operation. Bill retains command of the sale by proceeding to eliminate this objection, citing an experience of his own.

BILL: "I used to think the same way, but one night when my wife said the same thing, we checked up to see just what we were buying. Our gasoline bill was over ten dollars that month and we didn't think anything about it. For the five dollars we paid for electricity we ran a refrigerator, toaster, percolator, washing machine, vacuum cleaner, radio and a lot of other small gadgets and also had plenty of light. We use electricity for so many things nowadays that we don't realize what a big bargain it is. Now take this lamp, for instance. You could operate it for less than one cent an hour —perhaps a total of fifty cents a month to get scientific lighting. That's a pretty low rate of insurance on good eyesight for the family, isn't it?"

PROSPECT: "It probably is but I'm not sure that this lamp would look well in my living room."

¶ Bill has overcome all of the main sales resistance that the prospect could muster by steadily plugging away at the advantages and quality of the study lamp. As a last resort the prospect has injected the weak objection about appearance.

BILL: "I can see that you are discriminating in your selection of your home furnishings. Therefore, I know that you can see that the designers of this lamp did not forget beauty. Notice the slim, graceful appearance of the stand. It will harmonize with practically any style of interior decoration and be a distinct asset to the furnishings of any room. Indirect lighting of this type is becoming increasingly popular. I'm sure you, too, will be well satisfied with this modern lamp. Do you prefer the table or the floor model?"

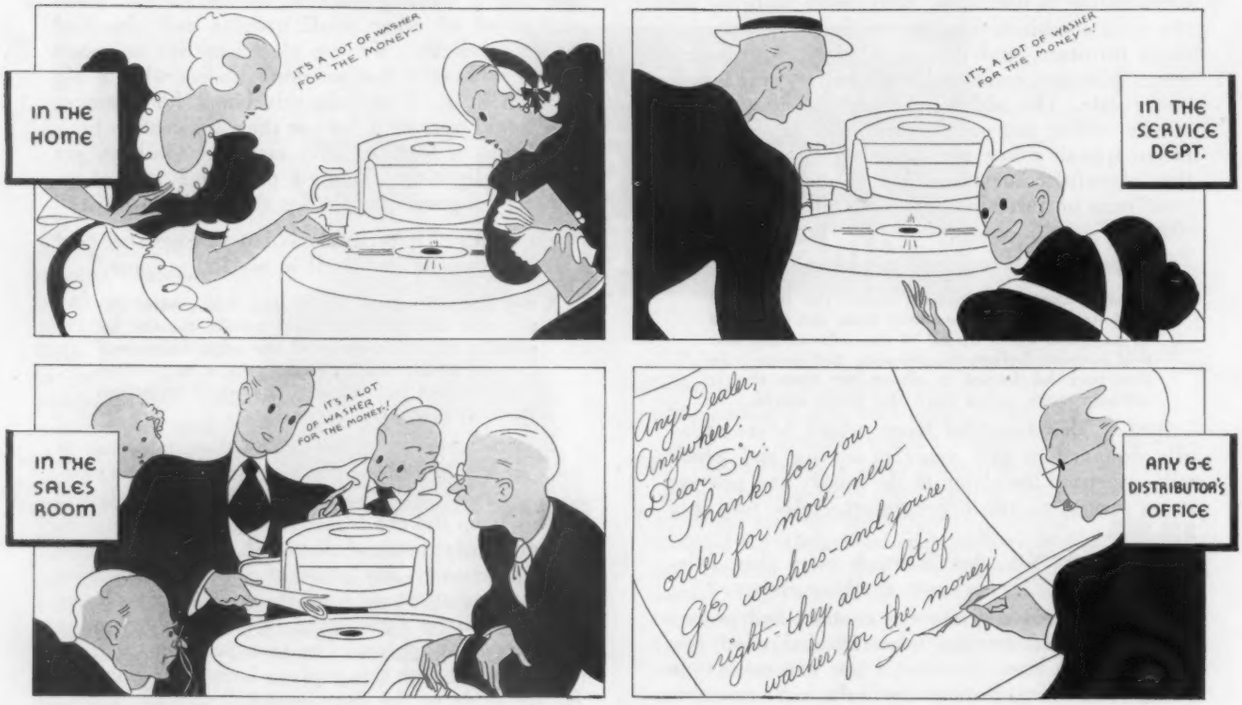
PROSPECT: *(finally deciding)* "I believe that I like the floor model best. Can you send it out today?"

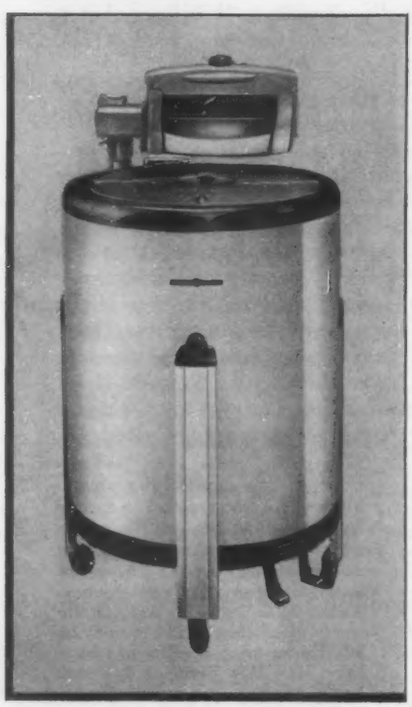
BILL: "It will be there before five o'clock. You will always be happy that you bought this model for it will give you so much comfort and enjoyment. If you would like to be sure that all the lighting in your home is safe for comfortable reading, I would be glad to arrange to have one of the home lighting specialists of the power company call and check up on it for you with one of the new accurate sight meters. There is no charge for this service and it is always good to know if we are asking our eyes to over-work.

¶ Bill is not satisfied with merely taking the order. He "follows through" by capitalizing on the interest he has created in better lighting. He knows that the power company home lighting specialist will find a receptive audience and that any recommendations which are made very probably will result in additional lamp and fixture business for Bill Smith. It's not hard to see why Bill Smith makes a success of being an electrical dealer.

CALIFORNIA OREGON POWER CO. | PORTLAND GENERAL ELECTRIC CO
MOUNTAIN STATES POWER CO. | PUGET SOUND POWER & LIGHT CO.
PACIFIC POWER & LIGHT CO. | IDAHO POWER COMPANY
NORTHWESTERN ELECTRIC CO. | WASHINGTON WATER POWER CO.
★ UTAH POWER & LIGHT COMPANY ★

IT'S A LOT OF WASHER FOR THE MONEY!


IN THE HOME
IT'S A LOT OF WASHER FOR THE MONEY—!
IT'S A LOT OF WASHER FOR THE MONEY—!
IN THE SERVICE DEPT.
IN THE SALES ROOM
IT'S A LOT OF WASHER FOR THE MONEY—!
Any Dealer, Anywhere.
Dear Sir:
Thanks for your order for more new G-E washers—and you're right—they are a lot of washer for the money!
Sir
ANY G-E DISTRIBUTOR'S OFFICE



Everybody's talking about G.E.'s New Model AW-24 Washer—and all other new G-E washer models. They are all saying, "they're a lot of washer for the money." Customers see them and say it. Distributors, dealers, salesmen, even the most hard-boiled service men are saying, "they're a lot of washer for the money." See them and *you will agree.* Why pass up a real profit opportunity?

Model AW-24—Features galore—Designed by Lurelle Guild—9-lb. capacity—Famous G-E Activator—DeLuxe "one control" G-E wringer—2¼-in. soft rubber rolls—quiet operation—silent-type G-E motor, rubber mounted—only four moving parts—no oiling ever required—foot-pedal control—white lacquer cabinet—black enameled tub—flared splash rim—flat polished aluminum tub cover—easy-rolling casters—impeller-type pump with telescopic swivel nozzle—rubber-covered cord approved by underwriters—one-year General Electric guarantee.

Clip and MAIL THE COUPON NOW!

General Electric Company, Section H-542,
Merchandise Department, Bridgeport, Conn.
I want additional information about this New G-E Line.

Name.....

Firm.....

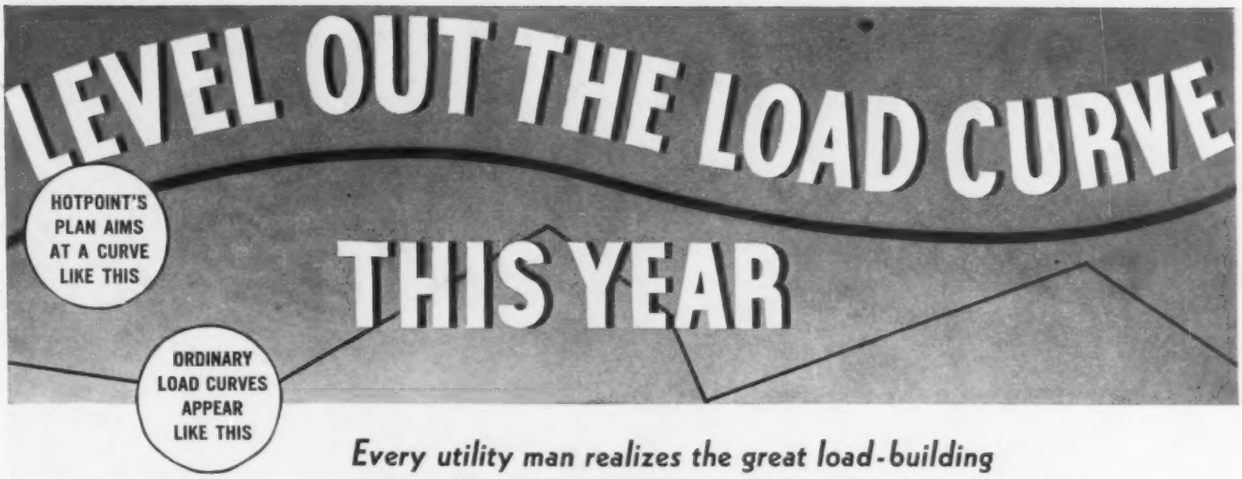
Address.....

City.....State.....

GENERAL ELECTRIC

HOME LAUNDRY EQUIPMENT

MERCHANDISE DEPARTMENT, GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONNECTICUT



Every utility man realizes the great load-building potential of electric ranges and water heaters. Hotpoint's 1935 program provides for 12-month promotion.

Hotpoint's year 'round plan for building load quickly and progressively is meeting with enthusiastic response from utility men everywhere.

This comprehensive program adequately meets the need for adding profitable revenue every month. It covers five major activities with a complete campaign for each, including sales promotion and advertising material specially designed to support each period.

See this complete and timely program with Hotpoint's sales contests, advertising, sales promotion material, sales training and direct factory sales assistance. Hotpoint's experienced and capable District Managers, Range Specialists, Home Economists and Service Men are ready to help you in every way to increase your 1935 range business.

Spring Campaign now ready

Hotpoint's second major activity, the Spring Modernizing Campaign, is now ready for release. The Hotpoint District Representative in your territory will gladly present this material to you and go over the whole 1935 program for continuous load building.

We urge you to get in touch with him at once, so you may get the story early.

EDISON GENERAL ELECTRIC APPLIANCE CO., Inc.
5612 W. Taylor Street, Chicago

Hotpoint

ELECTRIC RANGES AND WATER HEATERS

★
★
★

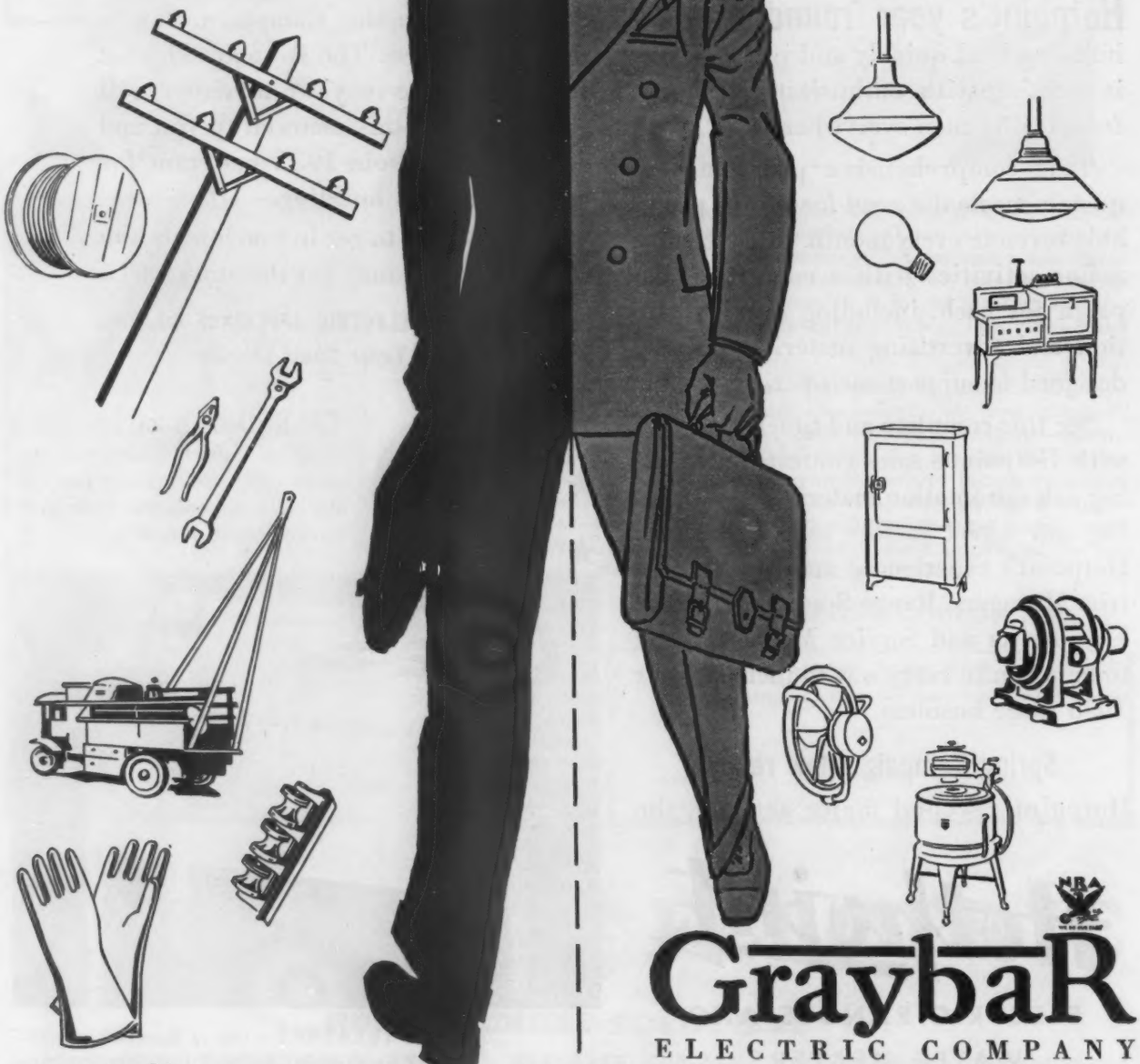
CALROD—*Hotpoint's improved Hi-speed Calrod brings a new high standard to electric range performance. It combines remarkable speed with amazing durability.*

THE TREASURE — *One of Hotpoint's new 1935 ranges, with modern styling. Priced surprisingly low.*

TWO SIDES
to this selling job

The Graybar Salesman is a part of an experienced service of supply, started in the earliest days of the Power and Light Industry . . . Graybar service to utilities includes warehouse stocks and quick, intelligent service from 74 conveniently located warehouses . . . and a friendly understanding of your problems.

The Graybar Salesman also works in the interest of the Power and Light Industry by selling thousands of load building devices to home, office and industry. Lighting equipment, motors, radio, refrigeration, a complete line of electrical appliances, and other equipment are all included.



Graybar
ELECTRIC COMPANY

OFFICES IN 74 PRINCIPAL CITIES

EXECUTIVE OFFICES: GRAYBAR BUILDING, NEW YORK, N. Y.

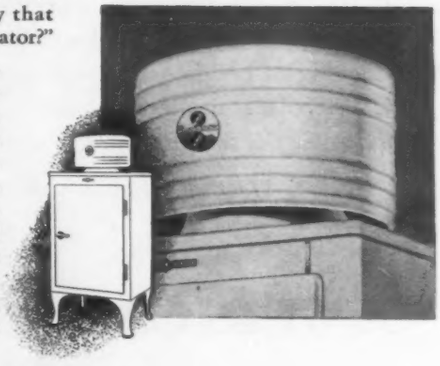
THE FORGOTTEN SERVICE MAN!

THE GENERAL ELECTRIC Monitor Top cut refrigerator servicing costs 75%. Expensive dealer service departments became unnecessary. Even where thousands of General Electric refrigerators have been in use for years, only a skeleton organization is required. In one territory where there are over 150,000 Monitor Tops in operation every day, many over five years old, the service required averages less than 5 minutes per machine per year!

Sealed in ageless steel walls, protected from air, dirt, moisture and tampering fingers, the amazing trouble-free performance of the G-E Monitor Top has built matchless good will with its owners.

Today the recommendation of a friend who is a user, is the strongest favorable sales influence any household appliance can have. Every time an owner tells a friend or a neighbor about the amazing performance of her General Electric, the way is being paved for another sale. In every survey "Recommended by a friend" takes foremost rank among answers to the question "Why did you buy that particular make of electric refrigerator?"

Over 1,500,000 satisfied users now enthusiastically recommend their General Electric refrigerators to friends and neighbors. The G-E retailer not only makes more refrigerator sales through "using the user," but finds every G-E refrigerator owner to be a preferred prospect for other General Electric appliances. General Electric Co., Specialty Appliance Sales Dept., Sec. DC 2, Nela Park, Cleveland, O.



GENERAL ELECTRIC

ALL-STEEL REFRIGERATORS

"Let 'er Storm"

"WEATHER DOESN'T BOTHER RELIANCE U·R·C· WEATHERPROOF WIRES AND CABLES"

YES—let'er storm. Any weather and any temperature is a made to order condition of service for **Reliance U. R. C. Weatherproof Wires and Cables.** Ask for samples now—see for yourself why these wires and cables make replacement due to exposure a thing of the past. "Reliance" Wires and Cables fully conform to U. R. C. specifications. Complete saturation with high melting point compound insures long life despite the ravages of exposure and overloading. Low temperature pliability is provided to meet any bend test or operating requirements. The copper is "right" and braids are of best quality. Processes and equipment are not "new" to us. Stocks and manufacturing facilities insure of "Service" comparable to the quality of the product.

[Our specification folder will be mailed to you upon request.]

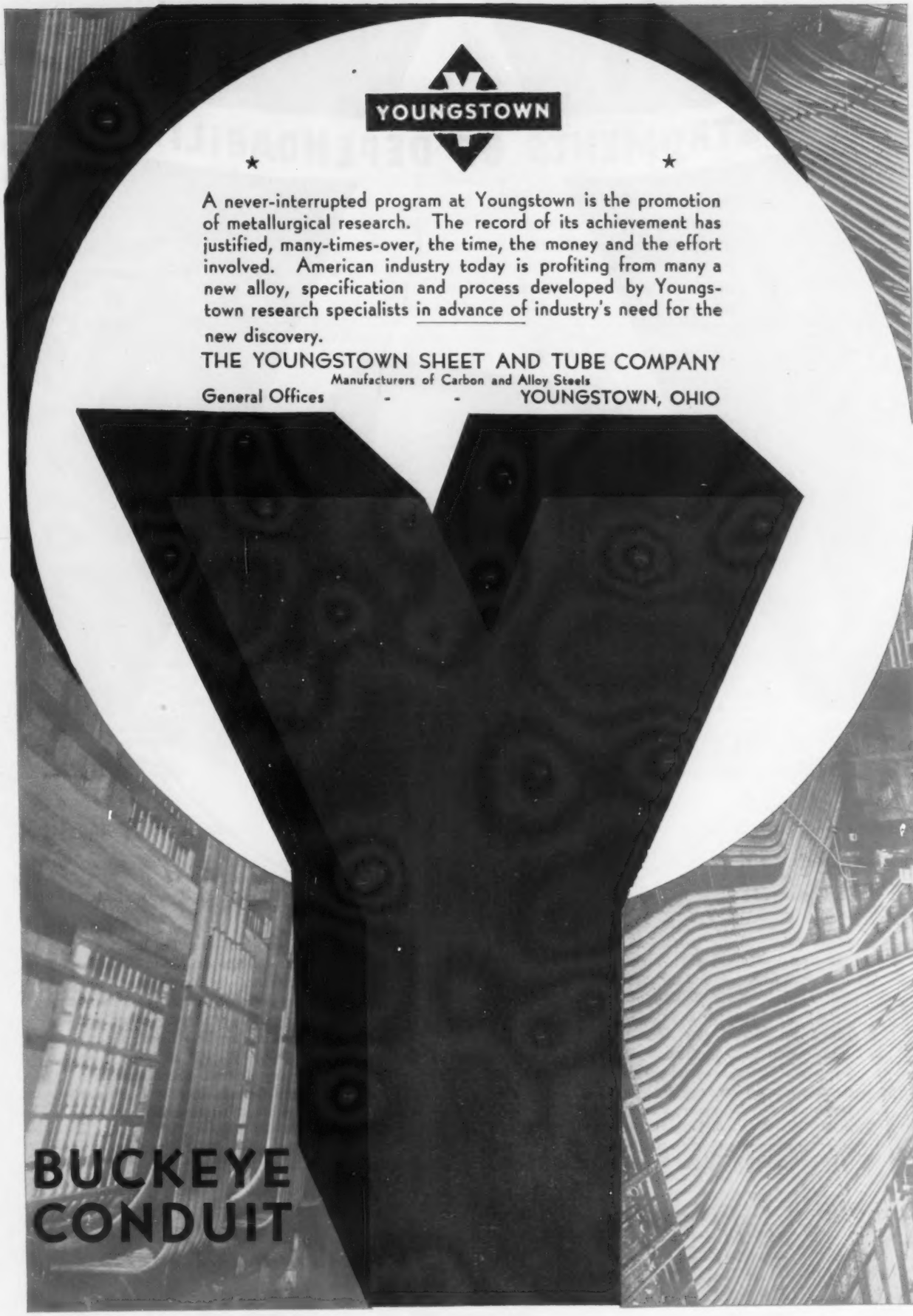
AMERICAN STEEL & WIRE COMPANY

United States Steel Corporation Subsidiary

Pacific Coast Distributors

COLUMBIA STEEL COMPANY

SAN FRANCISCO LOS ANGELES PORTLAND SEATTLE


YOUNGSTOWN
A never-interrupted program at Youngstown is the promotion of metallurgical research. The record of its achievement has justified, many-times-over, the time, the money and the effort involved. American industry today is profiting from many a new alloy, specification and process developed by Youngstown research specialists in advance of industry's need for the new discovery.
THE YOUNGSTOWN SHEET AND TUBE COMPANY
Manufacturers of Carbon and Alloy Steels
General Offices - - YOUNGSTOWN, OHIO
BUCKEYE
CONDUIT

INSTRUMENTS OF DEPENDABILITY

WESTON

Many years ago the instrument specifications of the electrical industry were written . . . around Weston instruments. Today, and all through this period of a half century, those specifications remain unchanged . . . for Weston ideals and the dependability of every instrument bearing this name have never changed.

In switchboard instruments, Weston 6" Rectangulars are accepted as standard the world over. These instruments are incomparable in their simplicity of construction — the ready accessibility of the movement for minor adjustment and inspection — their space economy; and their bold markings on wide, open scales. They can be mounted on metal panels without special provision for insulation. The location of connection studs permits of standard switchboard drillings and interchangeability of instruments. Resistors where required are mounted externally on the back of the instrument, affording a simple, compact arrangement. These instruments can also be supplied with flush type cases.

For switchboard use, or any instrument requirement, you can assure instrument dependability by making the name Weston your guide. Literature describing the complete Weston line on request . . . Weston Electrical Instrument Corporation, 577 Frelinghuysen Avenue, Newark, New Jersey.

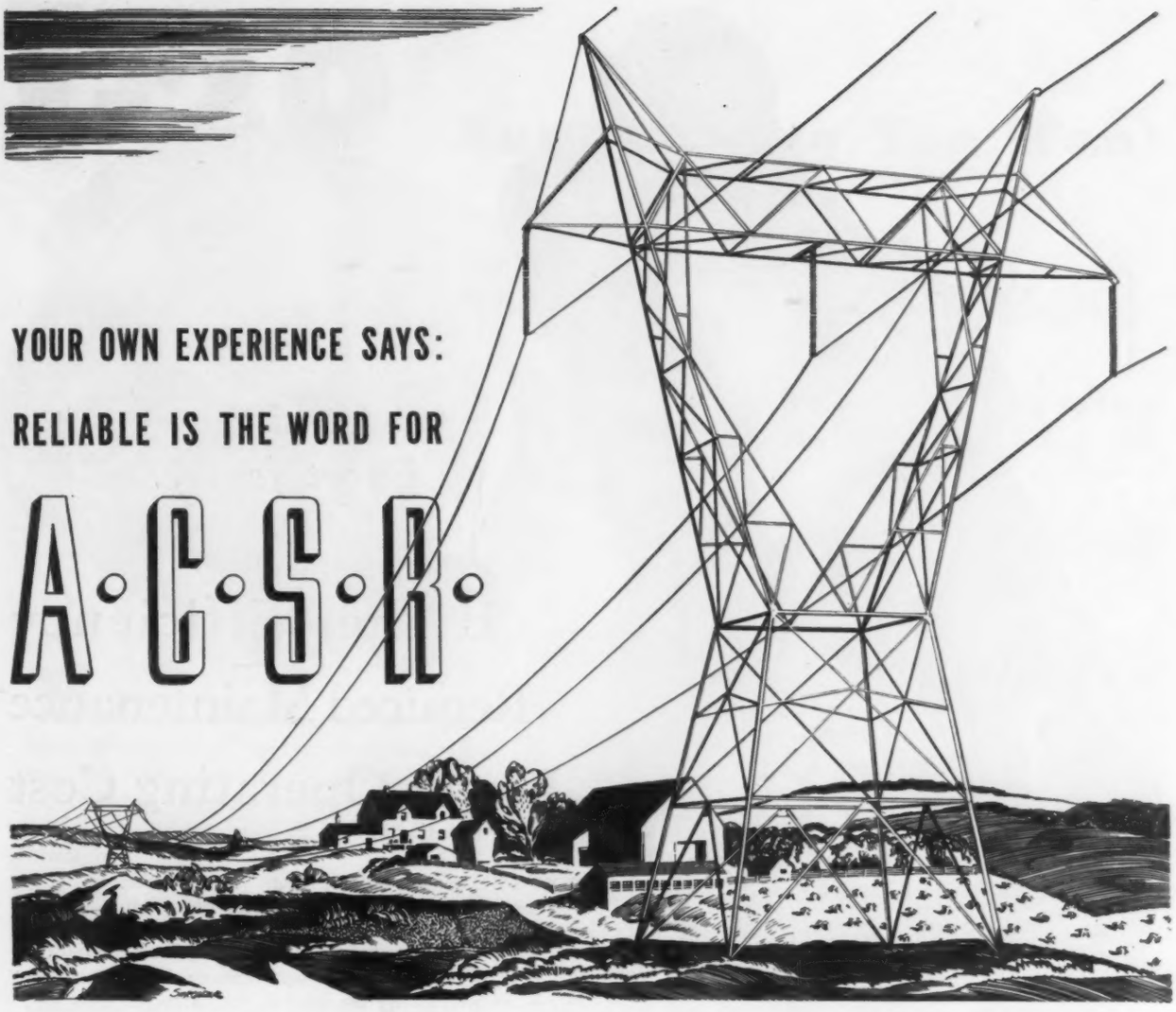
WESTON *Instruments*

PACIFIC COAST REPRESENTATIVES

Eicher & Bratt,
263 Coleman Bldg.
Seattle, Wash.

C. F. Henderson,
420 Market St.
San Francisco, Calif.

Electrical Engr. Sales Co.,
Subway Terminal Bldg.
Los Angeles, Calif.



YOUR OWN EXPERIENCE SAYS:

RELIABLE IS THE WORD FOR

A·C·S·R·

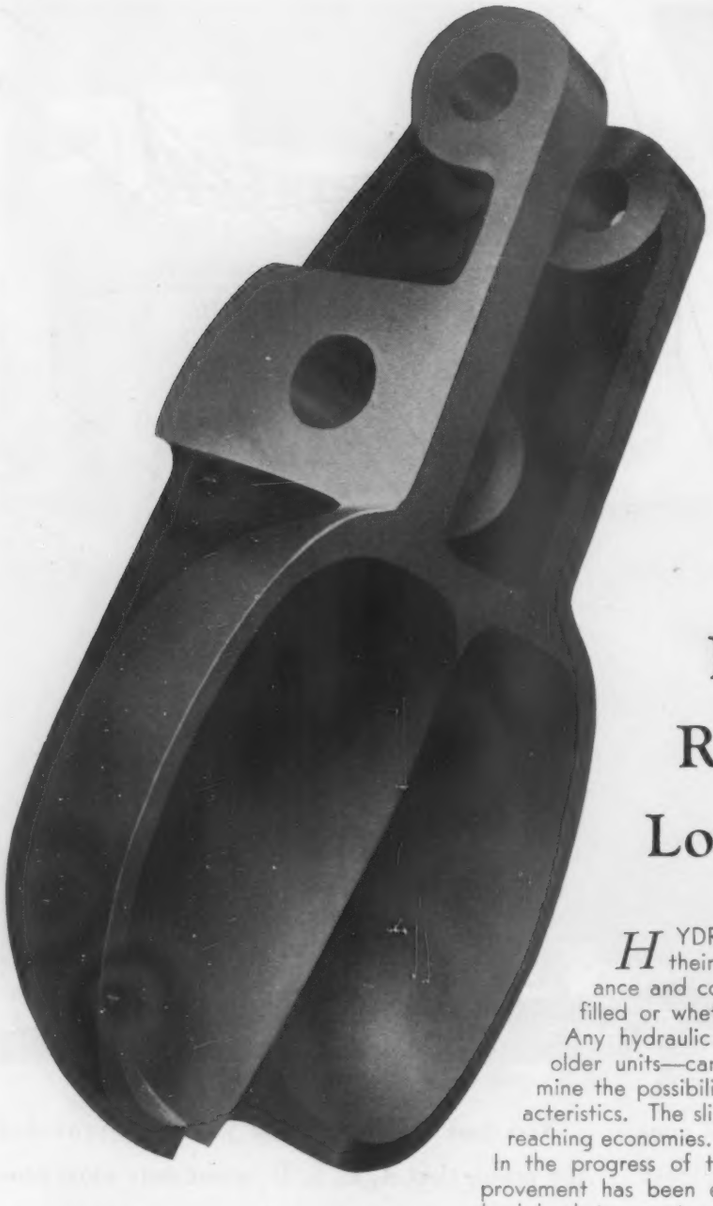
● Details of transmission line design and construction go forward with experience to meet new conditions. But the real fundamentals of high tension lines, which you pioneered in the West, remain unchanged, a tribute to sound engineering.

It was the West that gave first recognition to the merits of A. C. S. R. for high voltage transmission. Yours was the first proof, years ago, that A. C. S. R. would do exactly what the curves, the tables and the calculations said it would.

You had the belief, and you have provided the proof, that A. C. S. R. is not only most economical to build with, but most reliable to depend on, year after year.

Transmission engineers, now depending more than ever on the proved reliability of A. C. S. R., owe much to the pioneering spirit and the engineering foresight of western engineers. It has been a distinct privilege to have had the opportunity of working with you. Aluminum Company of America, 1832 Gulf Building, Pittsburgh, Pa.

ALCOA ALUMINUM



A Consistent Effort for....

Higher Efficiency
Reduced Maintenance
Lower Operating Cost

HYDRO plants yield a return in proportion to their mechanical efficiency, cost of maintenance and cost of operation, whether reservoirs are filled or whether stream flow must be maintained. Any hydraulic power installation—particularly the older units—can well justify an analysis to determine the possibilities of improving operating characteristics. The slightest change may produce far-reaching economies.

In the progress of the hydraulic art marked improvement has been effected in design of water wheel buckets, construction of straight flow nozzles, simplification of operating mechanism and development of automatic devices. Substitution of these parts has already produced remarkable results in many obsolete plants at slight cost, increasing unit capacities, and decreasing unit operating expense and outage time.

Pelton engineers will gladly assist in any plant analysis, offering their long and intimate experience without obligation.

THE PELTON WATER WHEEL COMPANY

HYDRAULIC ENGINEERS

120 Broadway	2929 Nineteenth St.	Paschall Station
NEW YORK	SAN FRANCISCO	PHILADELPHIA

Pacific Coast Representatives for BALDWIN-SOUTHWARK CORPORATION, DE LA VERGNE ENGINE CO., CRAMP BRASS & IRON FOUNDRIES CO., and LARNER ENGINEERING CO., of Philadelphia, Pa.

PELTON

I-20 Any Housing You Want —But above all an ACCURATE Watthour Meter

THE choice of housing for your watthour meters is, of course, important. To meet your requirements, the new G-E Type I-20 meters (I-20-A, I-20-B, I-20-C, and I-20-S) can be furnished in several styles of housings.

But more important than housing is the selection of the meter itself. Upon accurate registration depends your revenue — and therefore your profits; and we want you to consider the features which contribute toward making the I-20 meter exceptionally accurate under all conditions of service.

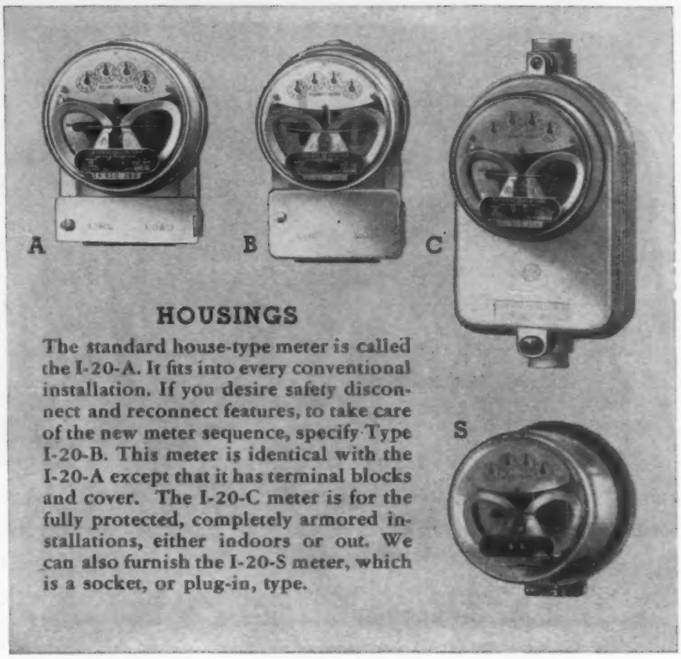
High torque, which insures accurate registration for long periods of time.

Long-range accuracy, which insures correct registration from light loads to the heavy loads taken by present-day residential consumers.

Independence of circuit conditions, which means that variation in voltage, frequency, and wave form do not affect performance.

Temperature compensation, which allows the meters to be installed anywhere, regardless of the most extreme variations in temperature, and still register with remarkable accuracy.

And of vast importance is the service record. The element in the I-20 meter is fundamentally the same as the element in our well-known I-16 meter, and the millions of I-16's in use, many for more than eight years, attest to the reliable and accurate performance of G-E watthour meters.



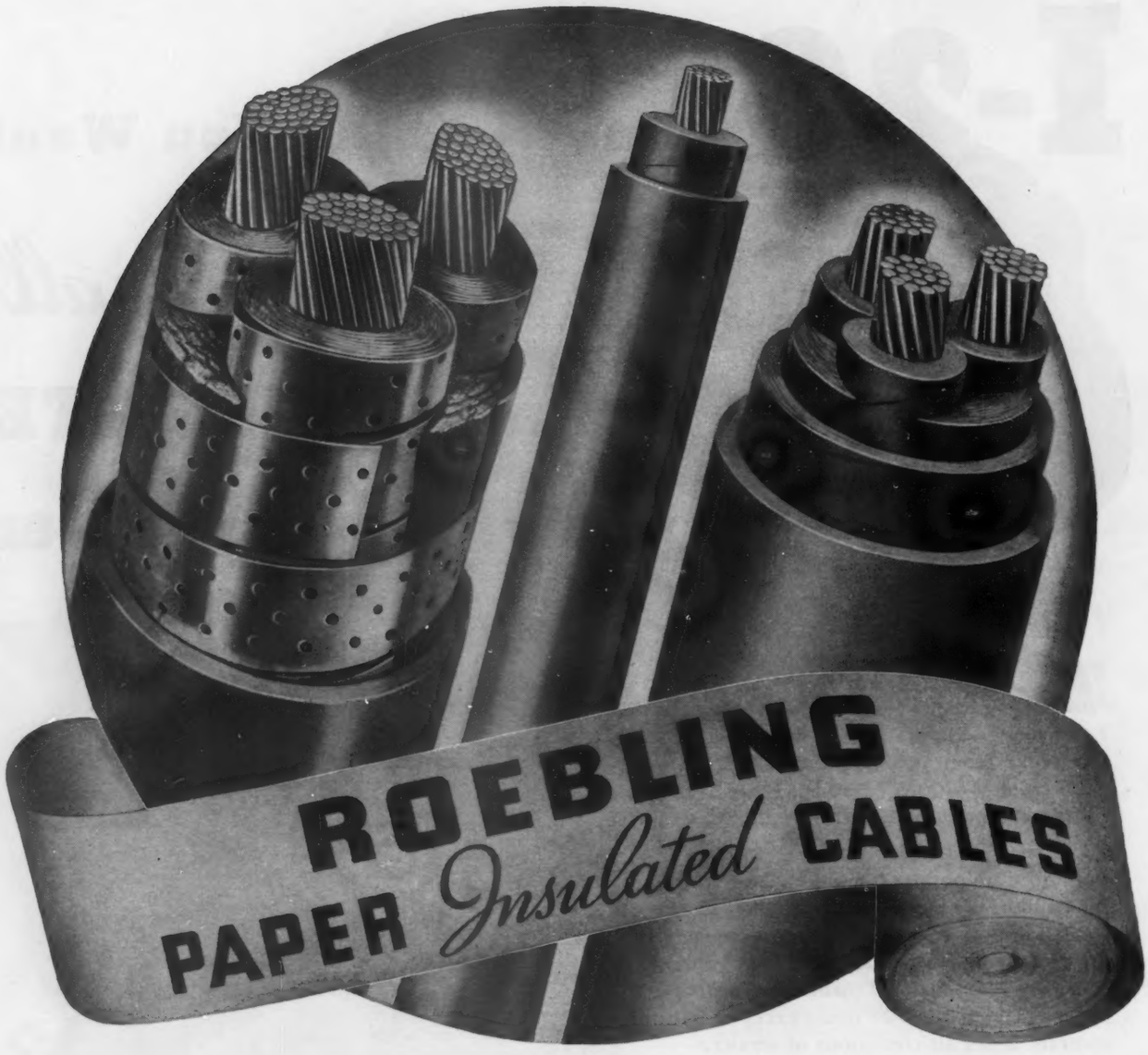
HOUSINGS

The standard house-type meter is called the I-20-A. It fits into every conventional installation. If you desire safety disconnect and reconnect features, to take care of the new meter sequence, specify Type I-20-B. This meter is identical with the I-20-A except that it has terminal blocks and cover. The I-20-C meter is for the fully protected, completely armored installations, either indoors or out. We can also furnish the I-20-S meter, which is a socket, or plug-in, type.

A new catalog on G-E watthour meters (GEA-615C) is soon to be issued. If you will address a request to the nearest G-E office, or to General Electric, Dept. 6D-201, Schenectady, N. Y., we shall be glad to send you a copy as soon as it is available.

400-6

GENERAL ELECTRIC



MADE in Type H or unshielded constructions, for a wide range of voltages, single or multiple conductor. Shown above, from left to right, are the following Roebling Paper Insulated Cables:

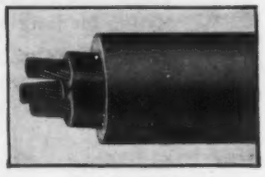
(1) Three-conductor; Type H; Lead Encased
(2) Single-conductor Stranded; Lead Encased
(3) Three-conductor; Belted; Lead Encased

All Roebling Impregnated-paper-insulated Cables meet the design, manufacturing, test and guarantee specifications prepared by the High Tension Cable Committee of the Association of Edison Illuminating Companies in consultation with the Insulated Power Cable Engineers Association.

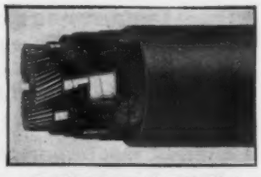
OVER 60 OTHER TYPES

Power Cables: Paper; Cambric; Rubber » Parkway Cable » Tree Wire » Service Cables » Station Cables » Rubber Covered Control Cables » Rubber Covered Wires and Cables: Code; Intermediate; 30% and 40% Performance; 35% and 40% Performite; Plain Rubber 60% Sheath Power Cable and 40% or 60% Sheath Flexible Cords » Slow Burning Wires and Cables » Weatherproof Wires and Cables » Submarine Cables » Portable Cords » And a wide variety of other wires and cables.

JOHN A. ROEBLING'S SONS CO. OF CALIF.
San Francisco • Los Angeles • Seattle • Portland



Roebling Rubber Insulated Cable.

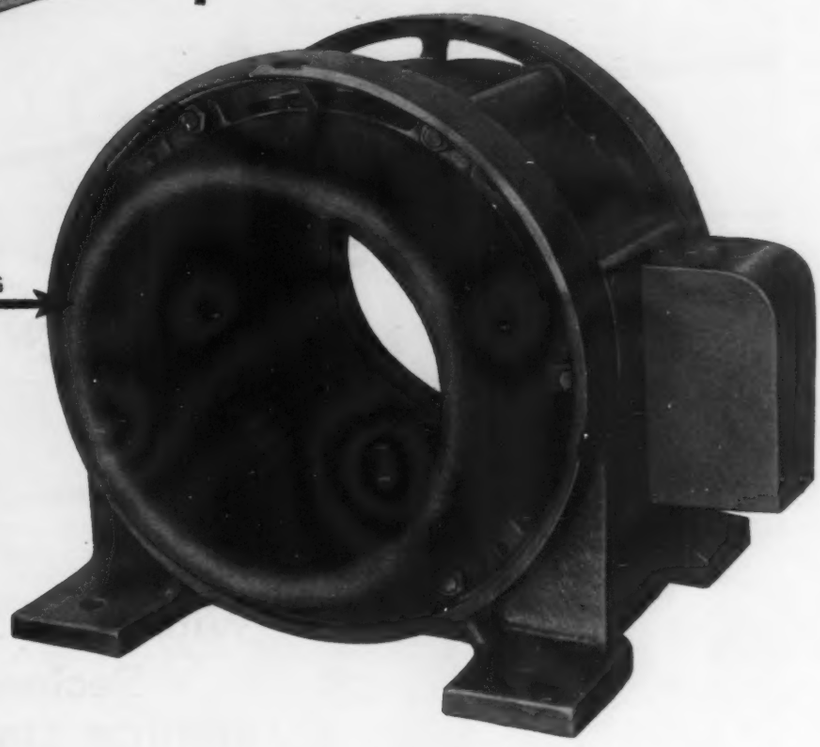


Roebling Varnished Cambric Insulated Cable.

ONLY A FINE PRODUCT MAY BEAR THE NAME ROEBLING

Seal-clad Motors

MOULDED BAKELITE SHIELDS
PROTECT THE WINDINGS



CONSTRUCTION FEATURES

Frame—cast steel with feet cast integral.

Stator Core—twistless, distortionless, and self supporting.

Stator Windings—Seal Clad; mechanically protected from dust and moisture.

Rotor—indestructible; bars silver brazed to end rings.

Ball Bearings—mounted in dust tight cartridges.

Sleeve Bearings—sealed enclosure prevents entrance of dust and dirt and escape of lubricant.

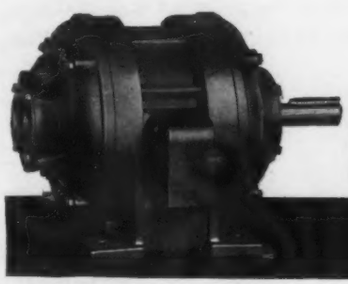
Permanent Coil Protection

WITH the new Seal-Clad construction, introduced by Allis-Chalmers, induction motors are now provided with hard, smooth Bakelite shields sealed over the stator coils, giving protection against damage from metallic dust, grit, oil, moisture, mild acids and other agents injurious to insulation.

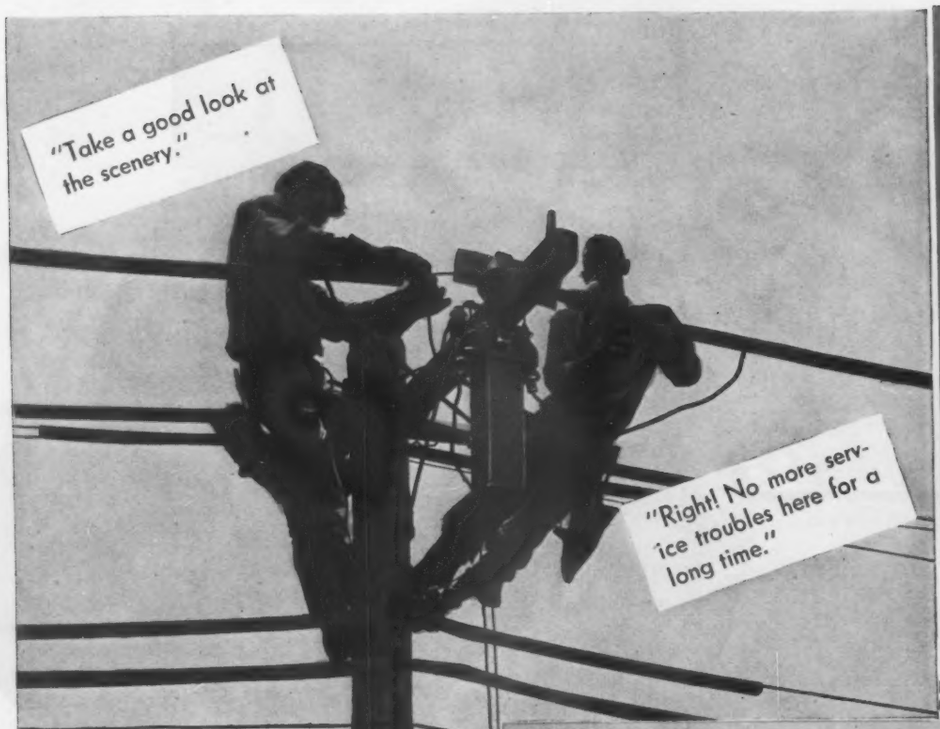
SEAL-CLAD motors are of the open type and are built in ratings up to 25 hp, 1800 rpm.

See nearest Allis-Chalmers district office or write for Leaflet 2182.

ALLIS-CHALMERS MANUFACTURING COMPANY
MILWAUKEE, WISCONSIN



ALLIS-CHALMERS
SEAL-CLAD MOTORS



With the New Oil-Circuit Recloser You Can

REDUCE LINE MAINTENANCE
IMPROVE SERVICE
GET BETTER PROTECTION
on outlying and low-capacity lines

Here's Why: The oil circuit recloser provides all the advantages of larger automatic reclosing equipments for lines which produce small revenues. When a fault occurs, the recloser clears the line and then automatically recloses. After reclosure if the fault is cleared, it resets for another complete duty cycle. It will clear any number of momentary faults without attention and with minimum service outage. On sustained faults it locks out after a predetermined number of reclosures. It will reduce patrol work and confine service outages to the short-circuited line. ● Here is the answer to the problem of automatic fault protection for your outlying and low-capacity lines. For details, ask for Bulletin GEA-2003. Address the nearest G-E office, or General Electric, Dept. 6—201, Schenectady, N. Y.

810-53

GENERAL ELECTRIC

ELECTRICAL WEST

[*Devoted to the economic production, transmission and distribution of electric power and its application to industry, commerce and the home in the Pacific Empire, and to the sale and distribution of electrical utilization devices, equipment and appliances in that area*]

February 1935

Figures Show Recovery Has Started

EXAMINATION and analysis of the statistics for the light and power industry of the 11 Western states for 1934 show that the recovery from the depression lows which started in the middle of 1933 has carried the industry forward throughout the year to figures that approach the 1930 peaks in many instances. Although disquieting factors clouded the horizon and still, to a degree, obscure the future, the trend is unmistakenly upward. Confidence has been restored and hope renewed as a result of the gains which the past year has shown.

Here briefly is the record told by the figures: Energy generation increased 6 per cent over 1933 to 15,049,085,000 kw.-hr. Gross revenues showed a gain of $11,000,000 or 5 per cent. The total number of customers served approached within 1.5 per cent of the all time record of 1931, the gain for 1934 having been 68,750 bringing the total to 3,222,901. Estimated expenditures for extensions, replacements and maintenance for 1935 are $36,800,000, an increase of 16 per cent. This is exclusive of the millions to be spent on various Federal and district power projects in this area.

Among other noteworthy and significant facts revealed by the comparative statistics are the effects of the drouth which caused an increase of 59 per cent in the amount of steam generated energy required to serve this territory, with a consequent increase in operating expenses. For the first time in history the installed capacity of generating plants reported to the U.S.G.S. declined, the drop being 17,838 kw. Thus time and obsolescence take their toll. However, the coming three years will tell a different story with the initial installations at the Diablo, Boulder and the Bonneville hydro plants scheduled for completion.

Mounting taxes constitute a serious problem. A study by E.E.I. estimates that government took 13.9 per cent of all revenue in 1934.

As the industry goes into 1935, there are more favorable entries on the balance sheet than there are unfavorable. Uncertainties as to legislative and political action are offset by the general stability of the operating companies. Rates are trending downward as use increases due to the national acceptance of the electrical idea. Load and output are growing as general business improves. All together 1935 should show gains as great or greater than 1934. If it does, the industry has no cause for worry.

Table I—Central Station Operations in 11 Western States, 1933 and 1934

	11 Western States		United States		Per Cent 11 Western States of Total U. S.
	1933	1934*	1933	1934*	
Energy Generated (millions of kw.-hr.)	14,198,112	15,049,085	85,401,732	90,140,000	16.7
Energy Generated in Hydro Plants (millions of kw.-hr.)	12,405,929	12,196,284	34,427,418	32,620,000	37.4
Energy Generated in Steam Plants (millions of kw.-hr.)	1,792,183	2,852,801	50,974,314	57,520,000	5.0
Percentage of Total Energy Produced by Hydro	87.9	80.4	40.3	36.2	...
Gross Revenue from Sale of Energy	$223,000,000	$234,000,000	$1,773,000,000	$1,833,000,000	12.7
Capital Expenditures	$21,200,000	$25,100,000	$170,000,000	$201,000,000	12.5
Maintenance Expenditures	$10,500,000	$11,700,000	$84,464,000	$93,350,000	12.4
Total Customers	3,164,151	3,222,901	24,295,515	24,855,989	13.0
Domestic Customers	2,480,245	2,534,423	20,004,098	20,520,870	12.4
Farm Customers	183,665	188,300	713,558	731,675	25.8
Installed Generator Capacity (kw.)	5,351,416	5,333,578	36,205,245	35,832,878	14.9
Installed Hydro Generator Capacity (kw.)	3,422,870	3,410,615	9,767,243	9,796,510	35.1

*Based on ten months' operations.

Table II—Energy Generated in Public Utility Plants of 11 Western States, 1924-1934

ENERGY GENERATED (THOUSANDS OF KW.-HR.)

State	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934*
California	5,566,440	6,215,813	6,898,620	7,355,548	7,979,837	8,849,622	8,948,326	8,796,177	7,948,505	8,023,243	8,542,815
Oregon	678,394	729,859	831,135	844,654	1,040,743	1,161,386	1,219,250	1,176,987	968,980	965,748	994,369
Washington	1,503,560	1,623,007	1,807,792	2,121,939	2,361,024	2,552,325	2,555,233	2,572,134	2,486,754	2,438,832	2,634,886
Nevada	41,623	39,703	36,840	51,236	54,935	43,840	42,895	19,006	32,749	24,231	32,941
Utah	266,946	339,967	349,604	338,067	282,791	402,005	292,550	276,483	275,476	327,379	195,976
Arizona	153,196	130,531	172,243	278,559	335,755	283,023	384,443	404,309	280,898	295,688	340,381
New Mexico	19,918	21,787	25,993	33,462	52,326	67,179	75,871	179,658	157,611	157,482	170,332
Colorado	490,030	522,892	561,962	551,173	541,150	563,813	573,341	528,817	478,263	459,453	502,815
Wyoming	53,556	55,544	59,381	66,493	83,931	98,665	98,215	94,539	84,633	78,964	88,958
Idaho	792,532	754,079	810,789	806,402	947,709	894,417	911,709	796,484	584,589	594,428	689,246
Montana	1,145,285	1,262,629	1,407,903	1,394,655	1,619,351	1,613,688	1,319,800	966,097	635,093	922,814	856,365

*12 months ending November 30.

Table III—Classification of Central Station Customers, 1933 and 1934

State	Total Electric Customers			Domestic Customers*			Commercial Lighting and Small Power Customers			Wholesale Power and Miscellaneous Customers		
	1933	1934	Change	1933	1934	Change	1933	1934	Change	1933	1934	Change
California	1,868,498	1,899,720	+31,222	1,492,397	1,515,357	+22,960	258,634	264,802	+6,168	117,467	119,561	+2,094
Oregon	236,927	245,760	+8,833	183,052	190,115	+7,063	33,676	34,307	+631	20,199	21,338	+1,139
Washington	424,377	434,216	+9,839	322,017	329,771	+7,754	59,804	59,974	+170	42,556	44,471	+1,915
Nevada	17,492	18,423	+931	13,313	14,325	+922	3,169	3,176	+7	1,010	1,012	+2
Utah	109,128	112,484	+3,356	81,414	84,433	+3,019	11,711	11,852	+141	16,003	16,199	+196
Arizona	70,268	72,968	+2,700	53,008	55,491	+2,483	9,831	9,918	+87	7,429	7,559	+130
New Mexico	34,754	35,218	+464	26,427	26,747	+3,200	6,275	6,414	+139	2,052	2,057	+5
Colorado	204,220	207,145	+2,925	161,330	163,897	+2,567	28,607	28,839	+232	14,283	14,409	+126
Wyoming	32,776	33,254	+478	25,697	26,402	+705	5,856	5,713	−143	1,223	1,139	−84
Idaho	78,517	82,297	+3,780	53,295	56,068	+2,773	11,801	12,177	+376	13,421	14,052	+631
Montana	87,194	91,416	+4,222	68,295	71,817	+3,522	15,366	16,012	+646	3,533	3,587	+54
11 Western States	3,164,151	3,222,901	+58,750	2,480,245	2,534,423	+56,968	444,730	453,184	+8,454	239,176	245,384	+6,208
Total United States	24,295,515	24,855,989	+560,474	20,004,098	20,520,870	+516,772	3,697,324	3,734,293	+36,969	594,093	600,826	+6,733

*In irrigated regions farm customers included under Wholesale Power and Miscellaneous.

Table V—Generator Capacity in Utility Plants, 1934*

State	Companies†	Plants	Total Capacity Kw.	Generator Capacity of Plants Operated By: One Type of Prime Mover: Water Power No.	Water Power Kw.	Steam Power No.	Steam Power Kw.	Internal Comb. Engines No.	Internal Comb. Engines Kw.	Combination of Two or More Types: Total No.	Total Kw.	Water Power Kw.	Steam Power Kw.	Int. Comb. Engines Kw.
Montana	7	28	310,599	15	299,610	7	7,863	3	1,448	3	1,678	268	445	965
Idaho	18	48	226,980	41	222,990	3	1,100	1	1,300	3	1,590	980	0	610
Wyoming	20	35	43,527	8	15,580	17	24,307	9	2,940	1	700	400	300	0
Colorado	28	68	233,888	21	53,652	33	172,791	9	5,151	5	2,294	1,344	175	775
New Mexico	17	29	85,911	1	200	12	76,861	12	4,399	4	4,451	808	1,617	2,026
Arizona	19	44	143,621	11	87,050	9	30,790	17	4,870	7	20,911	0	2,657	18,254
Utah	20	55	135,790	50	89,312	1	41,000	2	1,833	2	3,645	1,520	0	2,125
Nevada	5	11	11,327	7	8,895	0	0	2	1,000	2	1,432	396	600	436
Washington	28	70	893,134	45	706,434	15	182,270	2	173	8	4,257	2,299	880	1,078
Oregon	21	64	336,954	40	174,454	15	155,710	5	1,690	4	5,100	2,030	500	2,570
California	29	151	2,911,847	116	1,742,193	29	1,163,275	5	6,014	1	365	200	0	165
11 Western States	212	603	5,333,578	355	3,400,370	141	1,855,967	67	39,818	40	46,423	10,245	7,174	29,004
United States	1,590	3,819	35,832,878	1,346	9,533,450	1,338	24,977,056	851	399,469	284	922,903	263,060	543,810	116,033

*Data from U. S. Geological Survey. Includes all public utility plants of 100 kw. or larger and embraces also electric railway and other plants generating energy used for public utility purposes.

†Includes private companies and municipalities that have generating plants. Excludes those purchasing all their energy.

We Offer the Best Value In the Market Place

By W. C. MULLENDORE
Executive Vice-President, Southern California Edison Co.

IF WE were to accept the conclusions of many financial writers and other minor prophets, the outlook for the utilities in 1935 is not promising. It would appear that it has become the vogue with a considerable group of commentators, under the influence of dark forebodings, in part engendered by political fulminations, to write discouragingly on the future of the utilities. As in the case of many popular fashions or vogues, this one has been somewhat overdone. The picture is not so dark as it seems to those who have concentrated their gaze upon the dark side.

Many of the dreadful things with which the utilities are said to be faced are in the category of things which "may happen." We can conjure up all sorts of dreadful things which "may happen" to our economic structures—public and private. Yet I daresay that if the administrators of government and our legislators are so unwise and unjust, not to say utterly stupid, as to do all the things which the utility bears say they are going to do to the utilities, then their other policies probably will be so destructive in other directions as to leave the utilities in a relatively favorable position. We should prefer to believe that there is enough common sense left in government to prevent excessive abuse, and that those who interpret threats too literally and look on the dark side, are wrong. In any event, it is the part of practical wisdom to adopt the trouper's creed, that "the show must go on." In that spirit let us throw the spotlight on the opportunities rather than the obstacles of 1935. Since the wailing wall is already overcrowded, let us betake ourselves to the clearer and more refreshing, albeit thinner air of the mountain-top, from which vantage point we may discover the more pleasing, and overlook the meaner, aspects of the situation.

This is the advertising age. It is also the electrical age. No business and no service in America is today receiving even half so much advertising as is the electrical industry. True, not all of this advertising is favorable, or intended to be so, but there is considerable truth in the idea behind the statement said to have been made to a news editor by a once prominent politician:

> "I don't care what you say about me, but for God's sake, keep saying something."

Now, whatever else may be said of the volumes of free publicity which is being given today to the electrical industry, we should be grateful for the fact that this publicity is hammering

Utilities...

in upon the consciousness of the American people each day, and from many different sources, this central idea: "Electricity, electric service in the home, on the farm, in the store and factory, or wherever it is utilized, is the most important element in life."

The greatest propaganda machine which the world has ever seen has been developed by the present national administration, and a principal effort of this great machine is devoted to emphasizing the importance in American life of the very service which the electric utilities are furnishing. As a consequence, the American public is electric-minded today as never before. The great competition which we must meet is competition for the consumer's dollar and in that competition the battle is half won when the desire for your service is created in the mind of the consumer. It is reasonable to assume that this constant emphasis upon the value of electricity in the achievement of "the more abundant life" is creating desires for increased electric service in tens of thousands of homes and business establishments. That is our opportunity.

Furthermore, we of the electric industry know that the values we have to offer are the best values in the market. We know that the dollar spent on electric service brings the greatest return in human comfort, in assistance to the work of mankind wherever it is carried on, of any dollar spent by the consumer. We can take a just and honest pride in the fact that we have kept abreast of the advancing tide, both in standards of service and in reduced charges for that service. We are prepared to meet the challenge of all who dispute these claims.

The year 1934 brought concrete proof of the growing appreciation of the values of electric service. We find the proof in the fact that in 1934, 500,000 families were added to the number of domestic consumers in the United States; in the fact that in that year the use of electricity for domestic purposes reached the highest point in our history. In 1934, 1,300,000 new electric refrigerators were sold and probably at least twice as many radios. The increasing demand for and intense interest in air-conditioning equipment is evident on every hand, and in that undeveloped field there lies the greatest opportunity presented to any of America's industries today. To those who are asking "What is to be America's next great new industrial development?" we are prepared to answer, and it is: "Air-conditioning."

Here then, is our answer to those who are mourning over the outlook for the electric utilities:

Far from being decadent, we claim to be both the most progressive and aggressive group in America. The demand for our service is being promoted by the greatest publicity campaign in the world today. We are prepared to meet that demand. We have the goods

W. C. MULLENDORE

and the man-power, and we offer the greatest value for the consumer's dollar that can be obtained. If the American people honestly mean to attain the more abundant life, we propose to be the principal agency in the attainment of their objective. We will be most instrumental in increasing production, in advancing human comfort and in increasing the pleasure of work. If America is going forward, we propose to lead the advance. There are obstacles, of course, but we have met them before. And, finally, if it should be true, as some of the more discouraged insist, that the United States is approaching the end of its great and glorious epoch, we shall still insist that the electric utilities will be there at the finish, still on their feet, and still crying "Forward!"

•

Manufacturers Hopeful as Customer Demand Quickens

By VERNON BROWN
President, Square D, Inc.

NO prognostication for the future can be attempted without some reference to the past. While it is an old axiom that coming events cast their shadow, it is also a recognized fact on the part of manufacturers that trends for the coming year are indicated in business of the year previous.

As we in this company—and our operations are typical—take stock of the year just past, we find the following conditions prevailed. From the first of 1934 up until June, our business throughout the eleven Western states was definitely on the up grade. From June until after November 6 the Epic cloud hovering over California definitely retarded our business in this area. Throughout the Pacific Northwest and the great Southwest business continued to improve, but throughout California it fell off sharply. Our Texas and Colorado plants showed continual gains, while our Los Angeles and San Francisco plants either showed declines or no progress.

Since November all sections of the eleven Western states in which we operate have shown a definite improvement as far as all phases of our business are concerned. In some sections of the West the change has been most marked; in other sections, very slight.

Business for the electrical manufacturer in the West may be divided into three broad market classifications: first, the consuming public; second, the industrial consumer; third, the agricultural consumer.

While past experience leads us to feel it will be March or April before there is any marked building improvement, we have already noticed a quickening in this phase of general consumer demand through the activities of the National Housing Act. This move on the part of the federal government, in which most manufacturers connected with building are taking an active cooperative part, is also the long needed tonic for building and loan associations. These associations, which have been more or less quiescent during the past three or four years, are now taking a new lease on life and with government assistance and guarantee of government support, are again loaning money for building, buying and refinancing.

Manufacturers...

Industrial improvement is very marked. In the first place, government activity has again started the wheels moving in the industrial field. Moneys appropriated for such projects as Boulder Dam and Grand Coulee Dam in the Pacific Northwest have constituted a source of business for California manufacturers. The activities of various other government agencies, such as the CCC and the SERA, have also stimulated the sale of electrical equipment.

The systematic and energetic activity of the various electrical utilities of the West have been invaluable in stimulating business, not only from the general public, but from the industrial field as well.

As a direct result of the NRA Code, a better understanding has been built among not only the manufacturers of electrical equipment, but among the manufacturers of electrical appliances and the utilities themselves. It has eliminated many of the unfair trade practices in our line, and the united efforts on the part of all three groups to increase the electrical load and the outlet for appliances and equipment.

It is hardly necessary to mention the marked development which has taken place during the past six months in agricultural areas. In California and the Pacific Northwest farmers and ranchers are for the first time in a position to buy new farm equipment and new electrical equipment. Crop and live stock prices have increased in some instances as high as sixty per cent. California citrus crops will this year be bigger than ever before. This fact, coupled with the disastrous frost in Florida, assures California citrus growers of a good profit on their fruits in Eastern markets. From the manufacturers of electrically powered agricultural equipment we learn that all are experiencing an increase in business.

On the basis of these very definite trends, we feel that the year 1935 will be better than any experienced since prior to the depression. We believe that the gradual move towards business normalcy can be likened to the period directly following the Great World War. During this period we husbanded our resources, we gave that our troops in Europe might be better equipped to battle the enemy. Our morale was better during that period than it has been from 1930 to 1934. It is always easier to arouse national enthusiasm and maintain morale in case of actual warfare, than it is in case of economic warfare. Regardless of this variance in conditions, recovery after a war or after a depression is much the same. Industry and individuals have deprived themselves to support the government, aid the unemployed, protect their own interests, during a period when national fear

was very great, national morale very low.

Today fear has nearly vanished from the national scheme of things. Our manufacturers and our citizens have come to realize that, regardless of what may happen, America is going forward. Monetary policies may remain uncertain, our political and economic structures may change, but through it all will be noted a steady and sure advancement on the part of each of the forty-eight states that comprise this great Union.

●

What 1935 Offers the Dealer of Electrical Appliances

By J. T. TEMPLETON
Colvin-Templeton Co., Inc., Dealer and Distributor, San Francisco

PROPHESY may be dangerous, but surely there can be no reason why one cannot face the future courageously when the facts of today are such a strong index of what may reasonably be expected tomorrow. In this spirit, as a dealer, I can at least speculate as to what 1935 can mean to us and to our organization if we are alert to our opportunities, as we have every intention of being. I am sure, furthermore, that if any other dealer will pause to reflect with me over the aspects of business at the present time he will come, as I do, to the conclusion that the year 1935 shall be one of genuine opportunity.

On what do I base my optimism? Suppose we review the progress of retail business at the end of the past twelve months.

General conditions in business, especially in retail business, have given us enough evidence to assure us of *reasonable* improvement in all lines. With increased employment, so far as electrical appliances for home use are concerned, I feel that there is more than a reasonable expectancy for a substantial volume.

The sale of such appliances have back of them these strong influences:

First, the United States Government, with its electrification program, is giving to electrical appliances a wealth of publicity which cannot help but stimulate interest and make it easier for the alert dealer to continue this interest through to the consummation of a sale. Not only is the government giving publicity to electricity but it is making it possible for families to purchase the major appliances as a part of its program for better homes and home modernization. To the dealer this means both help and moral backing from the government.

J. T. TEMPLETON

Dealers...

Second, it has become imperative for the public service companies of the West to increase their load. This they are endeavoring to do with every reasonable inducement in the way of promotional rates for the householder. For the dealer this removes one of his former sales obstacles, that of cost of operation, and should materially assist him to convert more of his prospects into users.

Third, the manufacturers of electrical wares now feel that business conditions have improved sufficiently to warrant them to give an order to go ahead with production schedules, with sales and with advertising. Many factories have spent hundreds of thousands of dollars to increase or at least to get their production facilities in shape to produce a larger volume of the products we sell. This means that stock will be available to the dealer and that he can sell with an assurance that he can make deliveries to his customer.

Fourth, the publicity and merchandising that will be done in 1935 through the cooperative efforts of manufacturers, distributors and retailers will be quite an impetus, one that will reflect itself in a more energetic selling spirit. In the West here there will be some specific line or appliance pushed each month throughout the year in some cooperative campaign.

Fifth, another thing is the fact that the machinery is set up in such a way as to finance the sales appliances on such a liberal basis that it will be possible for what we have come to term the class C, D, and even E purchasers to avail themselves of these appliances This in itself will contribute materially to increase the dealer's volume.

Justification for all of the foregoing, to my mind, is based on the premise that practically every housewife who has not a modern kitchen, or the appliances to make it such, is already thoroughly sold on the idea. The desire has been created. It has been sold to her by every home magazine, by every exhibit of home modernization, by the world's fair at Chicago, by radio and by neighborly example. At the earliest opportunity that housewife will buy the appliances to consummate this desire for a modern home, with its modern electrical kitchen.

But the business will not just fall into our hands without effort. In fact the amount of business each of us as retailers secures will depend wholly upon the amount of effort we put forth —effort in advertising, in display, in demonstrations, in merchandising of all kinds. It has been many years since the people of the classes I have referred to have had the opportunity that will be theirs in 1935 to avail themselves of the appliances we have to offer them.

In the refrigerator field alone, the best estimates available, those made upon facts which have some foundation, place the total of refrigerators sold in 1934 at something near 1,400,000 units. I feel certain that we have a right to expect the sale of between 1,900,000 and 2,000,000 units in 1935.

Now it may be inferred from what I have said that we should expect, in the West, to sell a great volume of the type of appliance which has been developed by the manufacturers for the TVA. Yet it must be remembered that these were developed to meet a specific problem, one which is not to be found duplicated to any extent in the West. Except for small apartments, these appliances have not proved successful in our western country. To the dealer

S. G. HEPLER

they are not a profitable item. In fact they cannot be profitable to anyone concerned in the operation. Since their first announcement we have found a decided swing by the public back to the larger models and better merchandise.

I have said that the opportunities are here for dealers in 1935. Perhaps I would be remiss if I did not complete the thought with a reminder—it is one we all seem to need, no matter how many times we have heard it before—of how each dealer must prepare himself and his salespeople to seize the opportunities the year presents.

The secret, if it is a secret, to my mind, has always been and always will be—*better trained salespeople.* In our own organization we insist upon having each salesman make the complete and overall demonstration of an appliance to his purchaser. Each man gives the same demonstration in the same way, with the single exception that it is in his own language. This demonstration has been developed to bring into it every selling feature of the appliance, every benefit which the prospect may expect to receive from its use in his own home. When the prospect has had this demonstration in full we feel that no matter how much shopping about he does subsequently, we can feel safe that our product will remain most prominently in his memory, that it will bring him back to *buy* if anything can bring him back. Because our own organization is both distributor and dealer I know from experience one policy is of vital importance to both. It makes for that feeling of security and faith so important to good clean selling. I refer to the policy of strict control of distribution through established and franchised dealers. By this policy the dealer is assured that his distributor is fair with him, and that the privilege to sell that distributor's merchandise is a real privilege. It means that much of the chiseling which is so damaging to price adherence on good merchandise is stopped at its source. The dealer can stand by his price with a full assurance that his own distributor will not defeat him by selling around him through any other type of dealer outlet from which the purchaser may be able, through friendship or other forms of reciprocity, to exact a lower price at the sacrifice of the legitimate profit margin.

This has always seemed to me to be the foundation for a good operation, since it is the very backbone of successful selling—confidence in the product and in the manufacturer and distributor of it.

Selling requires technique and policy as well as opportunity in order to mean anything to the dealer. For these reasons I emphasize the need for sound methods of selling, and strong distribution policies as a corollary of the opportunities that I believe are to be found today. With the application of good selling methods, backed by substantial and fair-minded policies, and with the excellent merchandise that is now available, the dealer can take full advantage of the opportunities that better business conditions, government help and sanction, and well organized cooperative activities offer him in 1935.

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Let the Contractor Become A Creative Salesman

By S. G. HEPLER
Arrow Electric Co., Seattle, Wash.,
Chairman, 11th Region,
Electrical Contracting Code Authority

PROSPECTS for the electrical contracting industry during 1935 will depend primarily upon an equitable solution of the long-standing problem of distribution. There are other factors which tend to make the outlook promising, but if the contractor is to assume his former high place in the industry, his business must be made profitable, and there can be no profit until the channels of distribution are cleared of the flotsam and jetsam accumulated during recent years.

Contractors...

The contractor has been accused of lack of salesmanship, but if salesman ship has been lacking, the fault does not rest solely with him. It is the result of a combination of circumstances largely beyond his control. A dearth of business, not only for the contractor but for the wholesaler and manufacturer as well, coupled with the anxiety of these other branches to get what they thought was a fair share of the available volume, forced the contractor into a mad scramble to get his proportion of what is actually staple wiring business. Under these conditions, creative salesmanship was not only decidedly unprofitable but futile as well.

There can be no argument that experience has proved that there is but one most logical and efficient method for the distribution of electrical merchandise and supplies, and that is from manufacturer—to wholesaler—to contractor or dealer—to consumer. Other branches of the industry have had doubts as to the efficacy of this system, but the contractor will not quarrel with them. He believes in this system and is back of it. However, he has been annoyed at some points, such as in the case of certain classes of industrial sales, he has been by-passed by the wholesaler. Wholesalers in turn have met with similar treatment from manufacturers.

These manufacturers claimed that business conditions warranted experiments in distribution, that the wholesaler was lax in his sales efforts. The wholesaler retorted with the charge that his margin precluded business development activities. The contractor objected because industrial accounts were sold direct. Each branch met charge with countercharge, accusation with indictment. The accumulative result has been chaos, losses, suspicion, and irritation that have not been good for the industry as a whole.

These things are a matter of record. They have been cussed and discussed

for several years with no approach to an equitable settlement. However, conditions have changed, and it is this which leads me to be optimistic about 1935.

To me it appears that the wholesalers' and contractors' codes, properly coordinated with the manufacturers' code, are going to clarify the situation. These codes with their definitions of the functions of each branch of the industry which they cover, are going to lay a foundation for understanding and cooperation. Now for the first time, there is an instrumentality which will permit these branches of the industry to get together on a business development program. Whether or not the codes remain as permanent institutions, the opportunity is here today to pave the way for harmony and understanding.

With the contractor working in his natural field, that is, with the consumer of electrical supplies to create new business and with the wholesaler acting in his capacity of advisor and sales specialist, there is bound to be profit for all concerned. The contractor can assume some of the sales burden hitherto carried by the wholesaler and in return can reduce the latter's cost of selling. The number of the wholesalers' accounts will be reduced and his effectiveness increased. The sphere of the contractor would be broadened and made more attractive, that of the wholesaler would be concentrated.

Under such circumstances what manufacturer can question the logic or the effectiveness of the manufacturer—to wholesaler—to contractor—to consumer theory of distribution? This is how the codes can be used to solve a problem that has vexed the whole industry. With its solution will come benefits in which the whole industry may participate.

R. J. HOLTERMAN

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Bargains in Convenience Should Bring More Business

By R. J. HOLTERMAN
Vice-President, Westinghouse Electric Supply Corp.

ELECTRICAL wholesalers of the Pacific Coast are looking forward to the coming months of 1935 with optimism. Business in 1934 in this territory exceeded that of the previous year by more than twenty per cent. The improvement in 1935 is expected to equal or exceed the gains registered last year. The regions where sales have been the lowest are the ones making the best showing today, which is a repetition of the events of all past depressions.

One need not look far to discover the source of this additional business. Repressed wants, needs and desires of the American public, coupled with obsolescence in the home, the factory, the store and the office simply reached the breaking point. These unsatisfied requirements outweighed the many complexities of existing circumstances in business and government, which had caused money to be saved and hoarded during the previous four years. As a result people went out and bought convenience and it so happens that the electrical industry had big bargains to offer in this particular field. And our bargains in convenience are by no means exhausted because old appliances are being improved, new appliances and services are being offered and our prices are doubly attractive.

Merchandise showed the largest increase last year and this improvement is carrying over into 1935. The unit sale on merchandise was appreciably higher than for previous years, indicating that refrigerators, ranges, washers, ironers and other heavy appliances are being purchased in large volume. Incidentally, a decided improvement in the electric range business is confidently anticipated in 1935.

Wholesalers...

Industrial sales began to increase toward the close of the year as factories expanded production or were forced by obsolescence to revamp their electrical systems. With the general business improvement in this territory continuing, sales to his classification are expected to expand. Supply lines are beginning to feel the stimulation of the Federal Housing Administration program and as title II of this act begins to function, further improvement is expected. There is a definite shortage of housing facilities in many sections of the West and the FHA program is certain to result in more building construction.

Relations of the electrical wholesaler with other branches of the industry were never more promising. The code of the electrical construction industry has brought stability in prices, materials and workmanship. The educational work which the code has necessitated among electrical contractors has been good for the whole electrical industry.

Manufacturers, after experiments afield, now recognize that the wholesaler is entitled to a fair margin for his creative sales work. Codes have brought market stability and this, in turn, has brought industry unity and industry harmony.

Business promotional activities of the utilities, particularly in the creation of domestic load, have reflected tangibly on the business of the wholesaler. In practically every district in this Western territory the wholesalers are working more closely with the power companies in the stimulation of appliance load. Rates, prices and financing arrangements today are such that extra sales effort on appliance lines will bring to the wholesaler both volume and profits.

The optimistic tenor of this statement regarding the prospects of the wholesaler for 1935 should be qualified. Business is going to be good—for the salesman. Out of the unfortunate experiences of the last few years all business has learned one lesson—there is no substitute for selling. The rosiest outlook and the most alluring expectations count for nothing unless the salesmanship that can capitalize on them is displayed by the industry.

Power Economics vs. Federal Projects + + +

The site of Grand Coulee Dam, showing the approximate location and height of the dam dotted in. The white arrow shows the location of the huge conveyor that carries excavated material from the dam-site into a nearby canyon. The black arrow marks the head of the Coulee

WANTED: Buyers for One Billion Kw.-hr.

TO FIND a market for 190,000 kw. of new generating capacity that is being dumped by the government in the next few years on top of a present surplus of 440,000 kw. in the three major markets affected is one of the major economic problems immediately facing the people of the Pacific Northwest. This problem is created by the present construction and rapid progress of the two federal developments on the Columbia River, Bonneville with an initially allotted capacity of 86,400 kw. and Grand Coulee with 102,900.

But this is not a complete statement of the problem, since both these projects, if they are to produce really cheap power, which is the stated aim of the administration, must be developed to their ultimate capacities, which total 952,000 kw. On top of this, the city of Seattle is proceeding with the installation of 120,000 kw. at its Diablo dam on the Skagit River, and has up its sleeve on that stream 666,000 kw. more, for which financing by municipal borrowing could probably be found if and when a need became apparent. In addition, the private companies in the territory and one other municipal system could, at comparatively small investment per kw., provide an additional 515,000 kw. at their existing partly developed hydro sites.

But disregarding that available power which is not in more or less immediate prospect, the figures on surplus are staggering enough to give pause to the market areas concerned as the following tabulation indicates:

Bonneville	432,000 kw.
Grand Coulee	617,000 kw.
Diablo	120,000 kw.
New Surplus	1,169,000 kw.
Present Surplus*	440,000 kw.
	1,609,000 kw.

The problem then becomes one of how to find an economic use for this surplus, in a manner that will justify the public investment in the incoming plants without wrecking the private investment in existing power systems.

Since the allottment of funds for both federal projects in the fall of 1933 and the commencement of work soon thereafter, a number of official and semi-official agencies have put in considerable study on the economic aspect of these developments. As a result a volume of facts have been produced and are being assimilated, and further studies and investigations are being continued. It will be the purpose of this article to summarize the more pertinent facts and figures and present the more competent conclusions thus far reached. Before taking up this phase of the subject, however, it will be well, by way of furnishing a background for a better understanding of the situation, to review some of the physical aspects of the Columbia River and the federal projects under construction thereon at Bonneville and Grand Coulee. Much of the basic data presented hereinafter have been secured through the courtesy of the Army Engineers.

Columbia River

Hydrology

The Columbia River proper, rising in Columbia Lake, British Columbia, 30 miles north of the international boundary, has a total length of 1,210 miles. A tributary of the Kootenay, forming the upper portion of the same drainage basin, rises in British Columbia, flows southeasterly across the international boundary, through northern Montana and northern Idaho for 167 miles, then turns north into Kootenay Lake in British Columbia, the outlet of which flows into the Columbia. Large lakes in the upper regions of the storage basin, afford storage possibilities for nearly 18,000,000 acre-ft., and these storages are factors in river flow regulation.

About half way from the Canadian border to the sea the Columbia is joined by the Snake River, a stream 1,036

* In the three market areas affected, defined as (1) Puget Sound area, (2) Lower Columbia and Willamette River area, (3) Eastern Washington and northern Idaho area, which will be meant hereafter in this article, wherever figures or discussions pertain to markets in the Northwest, or wherever the terms "market territory" or "3 market areas affected" are used.

miles in length, draining all of southern Idaho and a large part of eastern and southern Oregon.

The total fall from the mouth of the snake to tidewater is 309 ft., or an average of 1.7 ft. per mile. From the Canadin border to the Snake the fall is 975 ft., averaging 2.3 ft. per mile. Concentrations of steep gradient are (proceeding up river) at Cascade Rapids, Celilo Falls, Priest Rapids, Rock Island, Grand Rapids and Kettle Falls.

The volume of flow along the length of the river varies greatly with seasons of the year and of course with distance from the mouth. Table I gives the minimum, mean and maximum flow during the period 1913 to 1930 at three points on the river, and also the maximum known flood occurring in June 1894, which, it is estimated, need be expected to recur only every 80 yrs. Both Grand Coulee and Rock Island sites are below the mouth of the Spokane River but above the mouth of the Snake. Bonneville is about 180 miles below the Snake. The flood season occurs in June and July and the low water period in the fall and winter.

Table I—Flow of the Columbia

Site	Miles from Mouth	Flow for Period 1913-1930 Min.	Mean	Max.	Flood of June, 1894
		Second Feet			
Grand Coulee	597	17,000	109,000	462,000	725,000
Rock Island	453	21,000	121,000	528,000	740,000
Bonneville	140	43,000	190,000	800,000	1,170,000

Navigation

From a navigation viewpoint the Columbia River divides naturally into three sections: (1) the tidal section from the mouth to the approximate head of tidewater at Bonneville Dam, 140 miles; (2) the middle section from Bonneville to the mouth of the Snake, 180 miles; (3) the upper section from that point to the Canadian border, about 440 miles.

The present ship channel with a minimum depth of 35 ft. extends from the mouth of the river 111 miles to the mouth of the Willamette River, thence up the Willamette to the Port of Portland. The balance of the tidal section from the mouth of the Willamette to Bonneville, is not navigable by ocean-going vessels, but it is proposed that a 30-ft. channel be dredged to the Bonneville Dam where revised plans call for a ship lock with a depth of 27 ft. Army Engineers have made no recommendation as yet on this dredging project, nor is any adequate survey in existence to show what its cost would be.

In the middle section occur two principal rapids acting as a bar to navigation. Through the first of these, the Cascade Rapids immediately above the Bonneville Ram site, the government built locks in the early 1890s. The dam will drown out these rapids and locks. The second, Celilo Falls, was canalized by the Celilo Canal in 1915. This Canal with its lower end at mile 188, is 8.6 miles long, contains four locks with a 265-ft. useable length, 45-ft. width and controlling depth at low water of 7 ft. Above this Canal to the Snake River the limiting draft for all year navigation is 4½ ft. In times past the river, from the mouth of the Willamette to Lewiston, Idaho, on the Snake, has been a minor factor in local commerce, but in recent years the river born traffic above The Dalles, which lies just below the Celilo Canal, has been negligible, and even from Portland to The Dalles it has been so small as to be of very little importance.

Irrigation

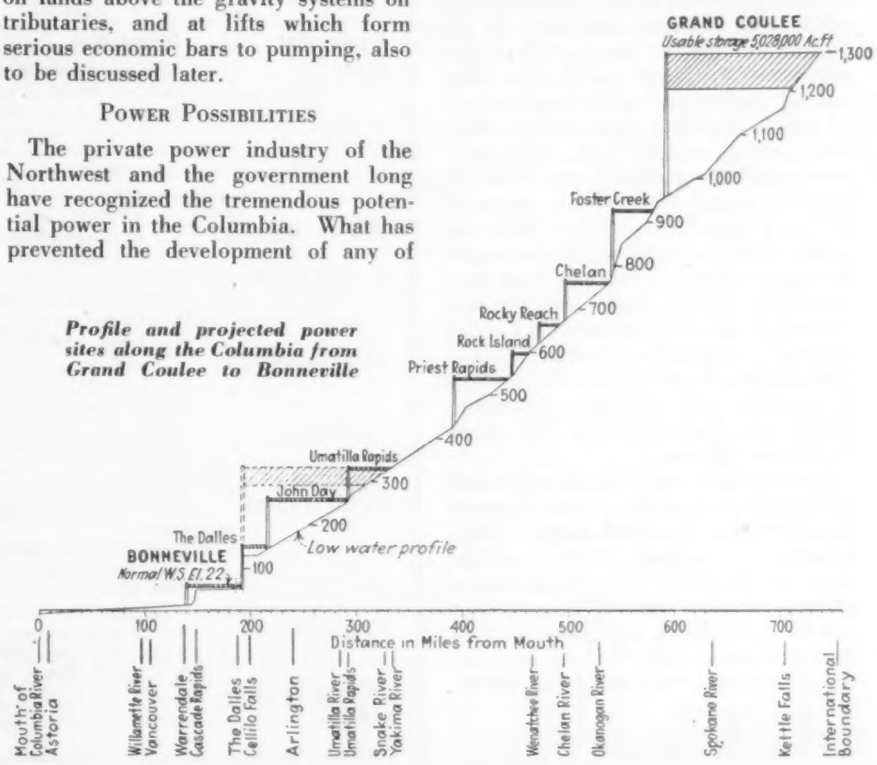
In that part of the Columbia drainage basin lying east of the Cascade Range, where rainfall is generally insufficient for crops, there are some 6,000,000 acres of excellent agricultural lands, ranking high for production of fruits, vegetables, grains and other crops if irrigation water is applied to them, and classified as irrigable. Some 4,000,000 acres are under irrigation, mostly by water from tributary streams and largely under gravity systems. Of the remaining 2,000,000 irrigable acres, approximately 1,200,000 acres lie within the projected Columbia Basin development which will be referred to in more detail later in this article. The other 800,000 lie along the Columbia on lands above the gravity systems on tributaries, and at lifts which form serious economic bars to pumping, also to be discussed later.

Power Possibilities

The private power industry of the Northwest and the government long have recognized the tremendous potential power in the Columbia. What has prevented the development of any of this power, except one small block, has been the fact that at no site could the power be economically developed in successive small steps and no demand developed for the sale of a large enough block of power to warrant the complete development of any one site. The one exception to this is the Rock Island site, near Wenatchee, which lent itself to a low-head development of 150,000 kw. ultimate, and a comparatively cheap development of a portion of this ultimate for the initial installation. At this site, the Puget Sound Power & Light Co. has 60,000 kw. installed in four units under a maximum head of 50 ft. with space provided for six similar units.

With a view to undertaking a large industrial development with heavy power consuming industries at the dam site, an affiliate of the Electric Bond & Share Co. in the 1920's explored the site at Priest Rapids, planned a half-million hp. project and made an exhaustive investigation of the possibility of selling the power. After some years of unfruitful effort the project was abandoned.

An exhaustive study of the power possibilities on the entire river from tide-water to the Canadian border was undertaken some years ago by the Army



Profile and projected power sites along the Columbia from Grand Coulee to Bonneville

Table II—Proposed Power Developments on the Columbia River and Their Main Features

Dam Site	Miles from Pacific	Normal Pool El. Above Sea Level, Ft.	Proposed Power Install. Kw.	Estimated Constr. Costs (Exclusive of Locks)	Dam Height Foundation to Normal Pool, Ft.	Max. Power Head	Useful Storage Acre-Ft.
Grand Coulee†	597	1,287.6	1,575,000	$171,000,000	475	351	5,028,000
Foster Creek	546	928.6	691,000	49,000,000	205	164	*36,000
Chelan	504	762	450,000	39,000,000	137	92	*47,000
Rocky Reach	474	665	336,000	38,000,000	80	59	*20,000
Rock Island	453	599	60,000	(built)	119	50	*10,000
Priest Rapids	397	540	644,000	63,000,000	192	131	*160,000
Umatilla Rapids	292	330	910,000	60,000,000	104	70	*135,000
John Day	213	258	1,080,000	110,000,000	159	102	*250,000
The Dalles	192	150	1,370,000	84,040,000	260	75	*80,000
Bonneville	140	72	430,000	42,000,000	140	64	100,000
Totals			7,546,000	656,100,000**			

Engineers. In that study 10 sites were chosen to utilize 92 per cent of the available head, and these sites were estimated to have an ultimate capacity of 7,546,000 kw. Nine of these projects (excluding Rock Island) were estimated to cost (power development only) $656,100,000. Table II lists these sites with some of their principal features, while Fig. 1 portrays them in profile, showing their relation to each other. In addition to this power on the river proper, it is estimated that 4,775,000 kw. is possible of development on the tributaries of the Columbia in addition to generating capacity already developed on these tributaries by private companies and municipal enterprises.

Bonneville Project

The Bonneville project under construction for a little more than a year, is a power and navigation project, 140 miles from the mouth of the river, and about 40 miles east of Portland. Situated at the head of the ordinary tidal effect, with ordinary low water at El. 15 and extreme low water at El. 5, the dam's crest will rise to El. 97. The normal pool level above the dam will be at El. 72 with a possibility of regulating it up to El. 82.5. The slack water pool above will extend about 50 miles upstream to the lower entrance of the Celilo Canal, but it will not contain sufficient useable storage to have any material effect on flood control below. This pool elevation will necessitate the re-location of 8.8 miles of existing railroad—4.8 miles of Spokane, Portland and Seattle Railroad in Washington and 4 miles of Oregon, Washington Railroad and Navigation Co. line in Oregon.

The site makes use of Bradford Island, dividing the river at this point. Between the island and the north bank (Washington) is the main channel of the river across which will be placed a spillway section. This will be a straight gravity dam 170 ft. high from its lowest foundation, 1,250 ft. long over all with a spillway crest length of 900 ft. Eighteen 50-ft. square lift gates between piers are designed to pass a flood of more than 1,600,000 sec. ft., or 1/3 more flow than the greatest known flood of the river, June 6, 1894.

Across the island and down stream about 1,000 ft. will extend an earth dike with suitable rip-rapping. Between the island and the Oregon shore, across what is known as Bradford Slough, will stand the power house, on the south end of which the navigation lock is cut through. This lock, originally planned for barge navigation only, was later changed in design to accommodate ocean-going vessels. It will be 500 ft. long by 76 ft. wide with 27 ft. of water over the sill at low water.

The power plant is intended to have ten 43,200 kw. units, two of which are to be installed in the present plan with foundation and skeleton structures for four more. These six units on 82-ft. centers are sufficient to close the channel completely, and the other four units of the ultimate development can be added later by extension of the power house on Bradford Island.

The wide fluctuation in flow of the river at this point, causing a rise in the tail water from an extreme low of +5 ft. to a maximum high of +63, led to the decision to use an adjustable propeller-type turbine. The Kaplan type designed for 60,000 hp. was chosen. At a 49-ft. head each turbine can develop full power using 12,420 sec.-ft. Head water can be regulated so that less than 49 ft. of head will be present only 6 per cent of the time, or when the flow exceeds 500,000 sec.-ft.

The type, kind, size and number of fishways to be provided in the dam to protect the extensive salmon runs using the river for spawning ground have been the source of much study and controversy since the project was started. Plans for the fishway installation are at date of writing being drawn, and it is understood they combine ladders, locks and elevators. It is interesting to note that in the original cost estimate, $800,000 was allotted for fishways. As demands from the $10,000,000 commercial fishing and packing industry, from game fishing organizations, State Fish Commissions, ichthyologists, and others became increasingly articulate, and as the

Status of Bonneville Project

Equipment	*Description*	*To Be Purchased*
DAM	Gravity type overflow spillway dam surmounted by eighteen 50x50-ft. gates—maximum height 180 ft., length 1,200 ft., connected to powerhouse by earth levee on top of Bradford Island. Maximum head 64 ft. Storage 100,000 acre-ft. Firm power 4,000,000,000 kw.-hr. Installed capacity: Initial ..... 86,000 kw. Ultimate .....430,000 kw.	
PRIME MOVERS	Vertical type, movable blades, propeller turbines rated at 60,000 hp.	1935
GENERATORS	2 43,200 kw., 0.8 P.F., 13,800 volts, 3 phase, 60 cycles, 75 r.p.m., vertical type. 1 4,000 kw. 0.8 P.F., 2,400 volts, 3 phase, 60 cycles, 257 r.p.m., vertical type.	1935
TRANSFORMERS	6 18,000 kva., 13.8/66 delta/115 wye kv., OIWC, single phase, 60 cycles. 3 1,667 kva., 13.8/2.4 kv., OIWC, single phase, 60 cycles. 6 333 kva., 2400/480 volts, OISC, single phase, 60 cycles.	1935
LOW VOLTAGE SWITCH-GEAR	2 Oil circuit-breakers, 3,000 amps., 15 kv., 1,000,000 kva., 3 pole, vertical lift, metal enclosed indoor type. 2 Oil circuit-breakers, 3,000 amps., 15 kv., 1,000,000 kva., single pole, vertical lift, metal enclosed indoor type.	1937
HIGH VOLTAGE SWITCH-GEAR	4 Oil circuit-breakers, 600 amps., 115 kv., 1,500,000 kva., 3 pole, outdoor type. 8 Disconnecting switches, 600 amps., 115 kv., 3-pole, single throw, gang operated.	1935
TRANSMISSION LINES	None.	

† High Dam.
* Pondage with 5-ft. fluctuation of forebay.
** Exclusive of Rock Island.

conditions to be met became better understood, the plans for fishways became more and more elaborate, until now it is estimated that $3,500,000 to $4,000,000 will have to be spent on this feature of the development.

Bonneville Dam was authorized September 1933, and $250,000 of PWA funds were allotted for exploration and preliminary work. In October 1933, $20,000,000 was allotted, and at a later time $11,000,000 more. When it was decided to install the ship lock instead of the barge locks originally planned, $1,200,000 was added, making the total allottment at the present time $32,450,000. The original estimate of the cost of the development with two power units was $31,000,000, but in spite of the fact that about $1,000,000 was saved by moving the spillway dam about a half mile down stream from its originally planned site, where a better foundation was found, the estimate is now—unofficial—that the initial development will cost $39,000,000, chiefly due to unforeseen demands for a ship lock and more elaborate fishways.

Work commenced on the project shortly after the first money was allotted and has been rapidly pushed forward so that at the present time excavation for the navigation lock has been practically completed and contracts have been let for the spillway dam, earth dike, power house structure, and part of the necessary railroad re-location. Coffer dam cribs are being sunk for un-watering the south half of the main dam, and concrete is being poured for the power house. The work is being done by the Army Engineers under Major General E. M. Markham, chief of engineers. The local organization is headed by Col. T. M. Robins, engineer for the North Pacific Division with headquarters in Portland. In direct charge of the work is Major C. F. Williams, district engineer and C. I. Grimm is his chief civilian engineer.

Construction at Bonneville is well under way as this view of activities at the power house site shows

Status of Grand Coulee Project

Item	*Description*	*Purchased*	*To Be Purchased*
DAM	Gravity type; height, 450 ft. above average level bedrock; maximum 354.6 ft.; storage, 5,028,000 acre ft.; firm power, 7,000,000,000 kw.-hr.; secondary power, 4,000,000,000 kw.-hr.; installed capacity, 1,984,000 kw.; ultimate capacity, 1,984,500 kw.; initial development to be gravity type dam 250 feet high above average level of bedrock with 15 units each rated at 34,300 kw.	Contract let	
PRIME MOVERS	15 vertical type reaction turbines rated 147,000 hp. at 120 r.p.m. Initial units equipped with temporary runners for head of low dam.		1936
GENERATORS*	15-105,000 kw. (120,000 kva.), 120 r.p.m., 22,000 volts, 3 phase, 60 cycle units. Original development will use low head generators rated 34,500 kw. each.		
	2-6,000 kw. house units.		1936
TRANSFORMERS	15 transformer banks for raising voltage to 220,000 volts.		1937
LOW VOLTAGE SWITCHING EQUIPMENT			1937
HIGH VOLTAGE SWITCHING EQUIPMENT			1937
TRANSMISSION LINES			1937

*Note: It is not certain as yet whether the high head turbines will be installed in the event the first unit of the dam is built. Should the high dam not be authorized, it is possible that low head turbines will be installed in the first development. However, there is strong hope of having the high dam authorized before the first unit is very far under way.

Grand Coulee and the Columbia Basin Project

The Grand Coulee project now under constructon is the so-called "Low Dam" power project without any immediate bearing on irrigation. Because it forms a step in the "High Dam" Columbia Basin Irrigation project, however, it is rated by the Federal government as a reclamation project. It was commenced under a PWA allottment of $63,000,000 originally made in August, 1933, to the Columbia Basin Commission, a state body, but because of the inability of this commission to put up the security required by PWA, the allottment was transferred to the Reclamation Bureau, thus making it a Federal undertaking. A knowledge of the general features of the "Low Dam" and "High Dam" projects and their relation to the Columbia Basin Irrigation project is necessary to an understanding of what is being done at this site under the present plans.

The Columbia Basin Irrigation project, subject of analytical studies, debates and controversies for many years, involves a grandly conceived plan for watering 1,200,000 acres of fertile arid land lying on the high plateau east of the Columbia and north of the Snake. The site of the dam is near the Grand Coulee, a dry canyon thought to have once been the bed of the Columbia. This coulee, 23 miles long and 6 to 10 miles wide, with a dike at each narrow end, would form a storage basin into which the water from the high dam storage would be pumped some 300 ft. up by the power developed at the dam, and from which a system of canals and pipes would extend to reach the areas to be watered. The water would be dropped from the maximum flow line level in Grand Coulee reservoir, at El. 1,570, to El. 500 at Pasco. Along the way 200,000 acres would be irrigated by auxiliary pumping out of canals with lifts exceeding 100 ft.

The high dam, built to El. 1,300, would raise the water approximately 370 ft. above its present level and would store 5,028,000 acre-ft. of useful storage. There are proposed for this development 18 power units of 105,000 kw. each, making a total capacity of 1,890,000 kw. of which 850,000 kw. would be firm. The pumping load to raise the water from the high dam storage 300 ft. to the Grand Coulee is estimated to be about 500,000 kw., and the secondary power can be applied to this load. This would leave all the primary power and about 500,000 kw. of secondary power for sale, from which proponents of the scheme expect to liquidate the cost of the dam and power plant and 50 per cent of the cost of the irrigation improvement. In other words a subsidy from power profits would be applied to reduce the charges for water on the land to equalize production cost on this land in comparison to other land similarly used.

The cost of the project is estimated at about $400,000,000 of which $171,000,000 would be applicable to the dam and power plant. The irrigation development would be accomplished in successive stages as use for the land was found. It is contended that the land could be settled and occupied at the rate of 20,000 acres per year, requiring 60 years to complete the entire development.

Grand Coulee Low Dam

The project actually under construction at Grand Coulee bears little resemblance to the project just described. With its dam 200 ft. lower than the high dam and its power units operating on low head wheels; with its firm available output of 2,200,000,000 kw.-hr. situated in an area of comparatively low population density which in its best year demanded a total of only 650,000,000 kw.-hr., for the supply of which there is now available 930,000,000 kw.-hr.—with these and other facts about it becoming better understood it appears more and more clearly to a greater number of people as the economic monstrosity it was dubbed by informed engineers and economists when it was first authorized.*

The site is about 20 miles northwest of Almira, Wash., and 76 miles west of Spokane. The low dam is to be a straight gravity dam 3,500 ft. long and 300 ft. high from its lowest foundation. Its top crest will rise to El. 1,116 with the spillway crest at El. 1,085, which raises the water above normal low water in the river 152 ft. The spillway section, 1,800 ft. long, is designed for a capacity of 1,200,000 sec.-ft. The 1894 flood at this point ran 725,000 sec.-ft. In the right side of the spillway section, at El. 935 near normal stream level, will be installed 10 pairs of slide outlets, 5 2/3 ft. by 10 ft. These 20 regulating outlets will be protected by trash racks and controlled by hydraulically operated slide gates.

Included in the plans for the low dam is the placement of a permanent concrete coffer dam about 400 ft. down stream from the axis of the main dam. This permanent coffer dam will be erected to El. 935, and, if and when the high dam is added, it will become the toe of this dam and part of the ultimate power house foundation.

The power plant will be divided into two sections, one on either side of the river down stream from the toe of the dam, each to house nine main generating units. Plans for inital installation are three main generating units and two station service units in the west power house, but enough foundation and substructure will be completed with the initial construction to permit un-watering for the foundation of the rest of the power house structures, when they are to be built. The units to be installed are the 105,000 kw. units designed for the high dam, but the wheels will be equipped with low head runners to develop 34,300 kw. at the head supplied by the low dam.

The contract for the main dam was let in the summer of 1934 and work was begun shortly thereafter. The tentative government schedule calls for completion of the main dam by October 1937. The work is being supervised from the Denver office, U. S. Bureau of Reclamation, with Raymond F. Walter, chief engineer. Field operations are in charge of Frank A. Banks, construction engineer, U. S. Bureau of Reclamation, with headquarters at Almira, Wash.

Power Situation in the Northwest

To furnish a quick-picture background for consideration of the power situation in the Northwest, Tables III, IV and V are presented. Table III shows the power capacity and available output of the two Federal projects on the Columbia River as they are now planned. Should the high dam Grand Coulee project with its irrigation pumping be built, the picture would be as portrayed in Table IV. This contemplates the operation of the 5,000,000 acre-ft. of useful storage behind the high dam in part for the river regulation with its consequent effect on firm capacity and output at Bonneville.

Table III—Capacities of Federal Plants as Planned

Project	Bonneville	Low Grand Coulee
Initial installed capacity (Kw.)	86,400	102,900
Ultimate installed capac. (Kw.)	432,000	617,400
Firm capacity (Kw.).....	295,000	365,000
Firm energy (1,000 Kw.-hr.).	1,580,000	2,200,000
Total energy (1,000 Kw.-hr.)..	3,600,000	3,600,000

In the market territory, within reasonable transmission distance of these projects, the available output of existing systems, private and municipal, is 4.6 billion kw.-hr. In this analysis the data given are consolidated from the five largest private utility companies and the municipal plants of Seattle and Tacoma in the three market areas previously referred to, and these data include probably 90 to 95 per cent of the total in those areas. At the present time the net use (sales to ultimate consumers including losses) is 2.8 billion kw.-hr., leaving a surplus of 1.8 billion kw.-hr., which is 39 per cent of existing capacity. The peak use occurred in 1930 when 3.33 billion kw.hr. were sold to ultimate consumers. Should the return of normal industrial activity again create a demand for this use before the federal developments are completed, there will still be a surplus approximating 1.3 billion kw.hr. in the territory, or about 28 per cent. A breakdown of these figures into the three market areas, into which the general market territory has been divided for analysis, is portrayed in Table V.

Table IV—Capacities of Federal Plants with High Grand Coulee

Project	Bonneville	High Grand Coulee
Installed capacity (Kw.).....	432,000	1,890,000
Firm capacity (Kw.)	310,000	850,000
Firm energy (1,000 Kw.-hr.).	2,720,000	7,500,000
Pumping energy (1,000 Kw.-hr.)	.....	2,400,000
Total energy (1,000 Kw.-hr)..	4,200,000	11,200,000

Into this situation will shortly be thrown the initial installations of the two Federal developments adding about 1,000,000,000 kw.-hr. of available output. In the meantime the city of Seattle's initial Diablo development, to be completed in 1936, will add another 500,000,000 kw.-hr. It will be noted that these three developments will add an available output greater than the surplus of existing plants, assuming the return of the 1930 peak condition. The ultimate development at Bonneville and Low Dam Grand Coulee will add a potential output of 7.2 billion kw.hr., which with the actual present available output plus the additional under construction at Diablo, will bring the grand total available output in the market territory to 12.3 billion kw.-hr., or 3.7 times as much capacity as the territory has ever used in its best year.

* For competent interpretation of facts about this project, see resolution of the Water Resources and Power Division, Pacific Northwest Planning Conference, passed at Seattle, Dec. 14, 1934, appearing in Electrical West for January, 1935, page 51, and further, see editorial in *Engineering News-Record* for Jan. 3, 1935, entitled, "A Mistake That Sould Be Corrected." page 23.

Table V—Present Power Capacities and Output

	Puget Sound Market Area	Lower Columbia River Market Area	Eastern Washington Market Area	Total Market Area
Installed capacity (Kw.)	598,000	310,000	204,000	1,112,000
1929 system capacity factor	0.45**	0.48	0.52	0.47
Output available (1,000 Kw.-hr.)	2,360,000	1,305,000	930,000	4,595,000
Present Conditions:				
Net use (1,000 Kw.-hr.)*	1,281,000	923,000	588,000	2,792,000
Surplus (1,000 Kw.-hr.)	1,079,000	382,000	342,000	1,803,000
Surplus capacity (Kw.)	274,000	91,000	75,000	440,000
Return of Peak Load:				
Net use (1,000 Kw.-hr.)*	1,586,000	1,089,000	658,000	3,333,000
Surplus (1,000 Kw.-hr.)	774,000	216,000	272,000	1,262,000
Surplus capacity (Kw.)	196,000	51,000	60,000	307,000

* Sales to ultimate consumers including losses.
** System capacity factor in 1929 was 38 per cent, but due to new steam installations and additional storage construction since this period it is assumed that under present conditions operation at a 45 per cent capacity factor would be possible.

One other fact is pertinent to a consideration of the power resources of the territory, and that is that there is a potential cheap development at private and municipal sites already in the initial stages of development amounting to 1,301,000 kw., listed in Table VI. Several of these sites are already developed up to their low water flow, but in all except the Ruby development of the city of Seattle, which has not been begun, additional units could be installed with comparatively small investment, and the operation of these additional units could be co-ordinated with the existing plants on the various systems to supply a much larger market than is now available. It should be noted further that these low investment additions would tend to decrease production cost on the systems affected.

In many respects the Puget Sound market area occupies a unique position in the picture. Far from either of the federal developments on the Columbia, and having in its center the extensive present and prospective municipal developments of Seattle and Tacoma, enjoying some of the benefits tending to make government plants generate cheaper than private plants (i.e., cheap borrowed money and freedom from taxation), the Puget Sound area promises to be in a position to bid favorably against either Grand Coulee or Bonneville for any heavy power-consuming industry that might be induced to come into the territory. In fact, J. D. Ross, superintendent of the Seattle system, stated recently in a public meeting* that there was no necessity of bringing Grand Coulee or Bonneville power to Seattle, and that Seattle had never lost any prospective power business by reason of any power rate offered elsewhere in the northwest. He advocated interconnection of Grand Coulee and Bonneville with the inter-communicated municipal systems of Seattle and Tacoma, offering Skagit power to supplement low head operation at Bonneville during periods of high water, thus setting up the Seattle municipal system as an exporter of power rather than as an importer.

Thus emerges a situation in which each of the three principal concentrations of population and market, already amply supplied with cheap power to an extent greatly in excess of their needs even in the recent boom years, will have within a few years large additional capacities whether they need it or not. And now that the picture takes shape clearly, showing the cart before the horse, let us see what the Northwest is doing about it.

Planning Bodies and Engineering Studies

Three agencies have undertaken a study of ways and means of finding an economic use for this surplus power, and have made considerable progress toward clarifying the situation for the public and toward the development of plans and policies that indicate some possibility of success. These are the Army Engineers, the Water Resources and Power Division of the Pacific Northwest Planning Conference, and the so-called Bonneville Dam Commission appointed by Governor Meier of Oregon and directed to report to that state's 1935 legislative session.

Prospective Markets for Power

Three types of markets for the present surplus and the new power that will be made available on the completion of the present authorized projects are recognized: These are:

1. Normal growth in the present load due to increase in population, increased use per customer, and growth in present industrial and mining activities.

2. Irrigation and drainage development, requiring electric energy for pumping.

3. New markets created by new industries that might be attracted to the area by government subsidized inducements.

1. *Normal Growth*—In the decade 1920 to 1930 electric power load in the market territory under discussion increased at a compound rate of about 9½ per cent per annum. This was due chiefly to the growth in population and the consequent increase in demand for domestic, commercial, industrial and municipal uses for power; the extension of distribution systems into new areas; the intensive cultivation of the domestic market by the application of attractive promotional rates and the aggressive sale of appliances; and increased uses of electric power in lumber mills and related industries and in mining activities. Normal growth may be expected to be resumed and to exert its influence on power demand, but a number of factors tend to indicate that it cannot compound the increase in power load at the rate maintained between 1920 and 1930 without unusual stimuli.

The average domestic consumption in the territory is about 1,100 kw.-hr. per year as compared to about 600 average over the United States as a whole. Despite this fact and despite the fact that increased sale of power in this market depends upon the ability of the consumer to incur large capital expenditures for appliances, it is thought that the domestic field yet offers a major field for exploitation. With lower promotional rates, lower cost appliances and a continued aggressive sales policy, one authority estimates that average use can be increased to 2,400 kw.-hr. per year. The new energy demand for this increase, plus the domestic, commercial and industrial demands from growth in population at the same rate as during the past decade, but excluding new large industries, would amount to 3 billion kw-hr. per year in twenty-five years.

Table VI—Possibility of Low Investment Additions at Existing Plants

Name of Company	Name of Plant	Proposed Additional Installation
Portland General Electric Co.	Oak Grove	25,000 Kw.
Northwestern Electric Co.	Ariel	135,000
The Washington Water Power Co.	Chelan	48,000
Puget Sound Power & Light Co.	Rock Island	90,000
Puget Sound Power & Light Co.	Baker River	40,000
City of Tacoma	Lake Cushman	27,000
City of Seattle	Diablo (a)	240,000
City of Seattle	Ruby (b)	360,000
City of Seattle	Gorge (c)	186,000
Rocky Mountain Power Co.	Flathead Lake (d)	150,000
Total		1,301,000 Kw.

(a) No installation at present, two 60,000-kw. units under construction.
(b) No development at present, proposed ultimate development.
(c) 54,000 kw. already installed, not included.
(d) Construction started, but suspended indefinitely in 1933 due to drop in load.

* Pacific Northwest Planning Conference, Seattle, Dec. 12-14, 1934.

House heating is looked upon by many as furnishing a large potential load. However, studies by the house heating sub-committee of the Northwest Planning Conference to date are not optimistic. It is pointed out that to compete with other fuels at present costs, electricity for resistance systems of heating would have to be made available at from 2¼ to 4½ mills per kw.hr. But it is found that distribution operating charges alone, excluding utilization, new business, general and miscellaneous expenses, to serve 100 per cent of the domestic customers in a typical urban area, would be 5½ mills per kw.-hr.

Using the reversed refrigeration cycle, the rates for electricity to compete with other fuels is placed at from 6 to 9 mills per kw-hr., which appears to be within the realm of possibility, but the capital cost of equipment is as yet too high to make this type of heating commercially feasible. Another important aspect of house heating by electricity is the low annual load factor which would vary in this territory from 20 to 25 per cent. The annual plant load factor might be raised by balancing a summer load, such as irrigation pumping, against the heating load in winter, but this would have no effect on the low load factors under which extensive transmission and distribution systems serving two independent and remote seasonal load centers would have to operate. At the present time, therefore, it is not expected that house heating can be made any considerable factor in the absorption of the surplus energy, although new developments may warrant a consideration of this field in the future.

2. *Irrigation*—Large areas of irrigable lands in the tributary area are possible of development physically, but present a different aspect when viewed from an economic standpoint. The 1,200,000 acres planned to be irrigated under the Columbia Basin project with the Grand Coulee high dam may be ignored in this discussion, since this project is not now authorized. It should be stated in passing, however, that, since the economic development of this project depends on a one-half mill rate for 2 billion kw-hr. of secondary energy for pumping, and the absorption of 7 billion kw.-hr. by commercial or industrial use at a profit to the project in order to repay one-half the irrigation cost from surplus power revenues, the construction of this project would aggravate rather than help solve the present surplus power problem.

Approximately 380,000 acres adjacent to the Columbia River below the Snake River are susceptible to irrigation by pumping with heads varying from 300 to 850 ft., which might absorb over a billion kw-hr. Economic development of these lands with this high pumping head would demand an energy cost not exceeding one mill per kw.-hr. at the pumping plant, and firm energy could not be generated and transmitted at this price. Therefore, their development is dependent upon the availability of cheap secondary power.

Preliminary studies indicate that some 700,000 acres of land in the Willamette Valley, now largely dry farmed, would be benefited by supplemental irrigation. The development of these lands based upon a pumping lift of 30 ft. would require an annual energy demand of about 60,000,000 kw.-hr. Data on underground water conditions, feasibility of irrigating these lands from stream flow by storage construction, and the rate the lands could afford to pay for electric energy for pumping, are, however, lacking, and the determination of the economics of the situation must await further investigation.

3. *New Industries*—The comparatively small possibilities for the absorption of new power capacity in the preceding two categories leads to the obvious conclusion that, if these large blocks of power to be made available by the Federal projects are to be absorbed within a reasonable time, new industries particularly of the heavy power consuming type, must be attracted into the territory. It should be remembered in this connection that an influx of industry would bring with it population and the consequent increase in demand for all commodities and services, which would carry with it a power demand augmenting the power demand of the industry itself. It should also be remembered, however, that the Northwest is not the only section of the country in which power surpluses are being created by the government, and that consequently this section of the territory will be in competition with many other sections.

Any section of the country combines advantages and disadvantages in the eyes of any industry looking for a location. The advantages of the Northwest seem to be (1) cheap power; (2) cheap ocean-going transportation (as far as the Puget Sound and lower Columbia River market areas are concerned; (3) large sources of certain minerals and raw materials; (4) nearness to the Pacific Coast and Far Eastern markets; (5) cheap land on tide water. The disadvantages to be overcome are: (1) lack of certain basic raw materials necessary for various electrometallurgical industries; (2) distance from major domestic markets found now largely in the Middle West and on the Eastern seaboard; (3) a new land in the eyes of industrialists, remote from well-established production centers where investments and initial developments have been made with a view to future expansion; (4) a generally unfavorable tax situation backed by a philosophy of state and municipal government that has not been encouraging to industrial development. (a factor not yet given much consideration by official planning bodies but one that it is felt should be recognized as being a definite disadvantage). Thus it becomes apparent that not only a very low power rate will have to be offered to industry to bring it to the Northwest but also other inducements will be necessary, particularly cheap land and assurance of low taxes.

Industrial Prospects

The industries in which the cost of power is a large part of the production cost and the energy used by these industries in 1929 are:

Metals	4,300,000,000 kw.-hr.
Pulp and Paper	2,630,000,000 kw.-hr.
Chemicals	2,570,000,000 kw.-hr.

A study of the possibilities in these fields has produced some fairly definite conclusions as to prospects and limitations.

Metals—The perfection of a commercially feasible method for the extraction of aluminum from the alunite available in the Pacific Northwest, or the discovery of useable local bauxite deposits, which is a possibility, leads the planners to believe that a development of an aluminum industry within the territory is within the realm of possibility. In the production of this metal. 25,000 kw.-hr. are required per ton of finished product and power cost is approximately 15 per cent of production cost.

Although aluminum production has fallen off approximately 50 per cent since 1929, there appears to be a growing demand, particularly in the transportation and construction fields, for light alloy metals of which aluminum forms the base. The Aluminum Company of America is meeting this demand by expanding production facilities at Arvida, Canada, where cheap electric power and ocean going transportation are available. A freight differential on raw materials and on the finished product laid down in the present domestic consumption centers, exists in favor of Arvida against the Pacific Northwest. However, as the demand for this type of product increases, it seems possible that some of the production facilities might center in the Northwest.

If a successful method of electro-

thermal extraction of magnesium from manesite and dolomite can be developed, it seems likely that a magnesium alloy industry would be possible, since large deposits of these ores are available in the state of Washington. Magnesium is the lightest available metal used as a component of aluminum and zinc alloys in the manufacture of ultra-light alloys and castings, and the use of these alloys is increasing. While the results of experiments with magnesite and dolomite are not final, proposed methods of reduction are found to require 17,000 to 30,000 kw.-hr. per ton of product, with a power cost estimated to be from 6 to 10 per cent of the total cost of production.

Another potential outlet for the Northwest power surplus appears to be in the manufacture of iron and steel and the closely allied ferro-alloy industries. No pig iron is produced in the West except in Utah and only one sixteenth of the Pacific Coast steel demand, estimated at 2,500,000 tons per year, is met by Pacific Coast steel mills, which obtain their steel ingots from scrap metal and Eastern producers. Only 10 per cent of the tin plate consumed in the Pacific Coast canning industry is manufactured on the Coast and no pipe, plate, or rail is produced here at present. With cheap power, limestone and charcoal available in the Northwest, the electric furnace reduction of western or Far Eastern iron ores to supply the far Western markets may become economically feasible due to the distance of these markets from present production centers.

The increased electric furnace production of ferro-silicon and ferromanganese and the import of the latter from Canada and Norway in recent years, draws the attention of the planners to the possibility of developing a ferro-alloy industry in the Northwest. Various ferro-alloys produced in the electric furnace require from 3 to 10 tons of raw material per ton of finished product and from 5,000 to 9,000 kw.-hr. of energy. Power costs range from 10 to 15 per cent of total production costs. Large reserves of manganese, chrome, tungsten and other ferro ores are available in China, Russia and Africa, and some of these ores are found locally in the Pacific Northwest along with silica and limestone which enter into the process.

Cheap water transportation to bring in the foreign ores, or the possible development of the local supply, are favorable factors looking toward the establishment of the industry in the territory under consideration, especially if the closely related steel industry can be attracted to the territory. With respect to water transportation, it should be noted that the import tonnage entering the Columbia River is only about 10 percent of the export tonnage, resulting in empty cargo space on incoming vessels, which would indicate that an especially favorable freight rate for importing these might be obtained.

Pulp and Paper—The existence in Oregon and Washington of approximately 50 per cent of the nation's reserve of spruce, hemlock and fir, has led to a consideration of the manufacture of additional supplies of pulp and paper in the Northwest as a possible use of some of the surplus power. In 1929, the United States imported approximately 16 per cent of the total paper it consumed and 30 per cent of the wood pulp and pulp wood that entered into domestic production. American producers met domestic demand for all types of paper except news print of which 2,400,000 tons were imported duty free largely from Canada and Newfoundland. Power plays a relatively small part in the manufacture of paper using chemical pulp, but where mechanical pulp enters into the picture, as in news print, the cost of energy is about 5 per cent of the total production cost.

The total annual consumption of news print in the Pacific, Gulf and Mountain states alone is estimated at 500,000 tons, while the combined capacity of mills in the Northwest now is only about half this. Pacific Coast mills cannot compete effectively in Eastern and Mid-Western markets on account of high freight rates, while Canadian and other foreign mills, due to the lack of an import duty, lower labor and power costs and closer coordination between the lumber and paper industries, can and do compete successfully in the Gulf and Pacific Coast markets. Under prospective conditions, Northwest mills should be able to supply a large part of the requirement of the Southern and Western states, though if experiments now being carried on as to the suitability of southern pine for news print are found successful, the Southern market might be shut off to them.

In the manufacture of pulp and paper from 8,000 to 20,000 lbs. of process steam are required per ton of finished product. This steam is now generated in the Northwest, largely by wood waste and fuel oil. Approximately 3,300 kw.-hr. of electrical energy are required for the generation of 10,000 lb. of steam. Taking into consideration fixed charges on equipment, electric energy for such use would have to be available at about 0.9 mills per kw.-hr. to compete with fuel oil and about 0.5 mills to compete with wood waste. Firm energy could not be made available for such uses at this price, and therefore, the generation of steam electrically in the paper industry would be dependent upon off-peak or seasonal secondary power.

Production of other cellulose products, such as cellulose plastics, lacquers and rayon, from high grade spruce pulp is another potential industry for the Pacific Northwest where raw materials are available. The processes of manufacture of these products, however, are not large users of electricity in themselves, but the chemicals entering into their production, such as caustic soda, chlorine, nitric acid, and acetone obtained from calcium carbides can all be manufactured by electrolytic methods.

Chemicals—Aside from the manufacture of chemicals that would be incident to some of the manufacturing pro-

Fort Peck Project, Missouri River

The primary purpose of the Fort Peck project is improvement of navigation on the lower Missouri River. It is *not* a power project. Possibilities of power development are being investigated but no definite plans have been released, and power production is considered as an incidental development.

Studies indicate that approximately 105,000,000 kw.-hr. per year of primary power, and 220,-210,000 kw.-hr. per year of secondary power would be available with a 50,000-kw. installation at 50 per cent load factor.

Work on the preliminary operations at the dam site were begun October 23, 1933. Pumping of dredged material into the stripped base of the dam commenced October 13, 1934. The earth fill will be placed with government plant, built at the site of the work, and hired labor, but many incidental contracts have been let to private companies.

The four, 28-in., electrically-operated dredges were launched during 1934, but only one of them was in operation. Installation of machinery continues on the other three. Each dredge unit consists of the dredge, booster barge, and land booster unit and the pump power demand of each dredge unit is 12,500 hp.

The transmission line was constructed primarily to furnish power for dredges, other construction work and domestic use in the town of Fort Peck. It is a 154,000-volt, 50,000-kw., three-phase line, half copper and half aluminum. Towers are wood poles with creosoted butts framed, guyed, and anchored. It is probable that this line will be used for power distribution if plans are made to install power equipment at the dam. This work was completed during 1934.

cesses of the industries discussed in the foregoing, the electrolytic and electrothermal manufacture of fertilizers in the Northwest seems to hold promise. Ammonia could be manufactured commercially electrolytic hydrogen and oxygen, requiring approximately 12,000 kw.-hr. per ton of product. With the development of the large deposits of phosphate rock in Montana, Idaho and Wyoming, phosphoric acid could be produced by the electrothermal process. One ton of phosphoric acid requires four tons of phosphate rock and one ton of other raw materials; and about 5,500 kw.-hr. of energy. Potash is also available in local alunite deposits and this could be developed to complete a mixed high-content plant food.

In 1929 the United States consumed about 8,000,000 tons of fertilizer, or approximately 5.26 lb. per crop acre. This use per acre is about one fifth that of European countries at the present time, and as lands become more and more debilitated by continued croppings, the use of fertilizer in this country may be expected to increase.

Summary of Conclusions on Power Markets

The conclusions reached from the study of prospective markets for power in the Northwest, outlined above, are as follows:

1. Natural growth of the present market will be insufficient to absorb more than a fraction of the power made available by the new projects under construction.

2. Due to the low rate necessary for irrigation pumping, such use, in general, affords no market for a large block of firm energy.

3. The absorption in a reasonable period of time of the large block of new energy being developed in the area is dependent upon the development of new industries which require cheap power in their manufacturing processes.

4. The attraction of present developed industries from their present well-established production centers and their development in the Pacific Northwest when market conditions warrant expansion of their facilities is dependent not only on cheap power rates, but also on other inducements such as cheap water transportation for the raw materials and finished products, cheap industrial sites and low taxes.

5. Exceptionally good possibilities appear to exist in the Pacific Northwest for the production of light alloys, ferro alloys, fertilizers, paper and other cellulose products, by reason of the availability of the raw materials entering into such production, and the economic feasibility of the development of these products should be thoroughly investigated.

Power Salesmen Needed

The foregoing market studies are largely a summary of some of the more competent economic studies that have reported progress to date. Where further information is needed, these studies are being continued so that by the time the government power is ready for the market, it is assumed the situation will be well in hand with facts, figures and sales arguments for putting it to economic use. But the mere existence of an attractive file of data will not be sufficient to induce industrialists to move West or start new in that comparatively new territory. The situation appears to call for an aggressive campaign by a trained sales force.

Of course before any of the power can be marketed, rates must be established, but the government has set up machinery for this and it is understood considerable progress has been made toward the preparation of rate structures. But the question is: Is the government the best agency for promoting the sale of the power? With large blocks of surplus energy in California, Nevada, Arizona, Wyoming, Montana, Tennessee, Alabama, and perhaps later New York, beside the two under discussion in this article, much of which will be highly competitive as between districts, the government would seem to be in a difficult position to undertake the necessary sales promotion.

This is undeniably a community job, demanding the fullest cooperation of all business elements and the best efforts of its ablest citizens. The greater the stake in the community of these salesmen, the more effective will be their selling efforts to get industry to come to the Northwest instead of going to some other section of these "dam conscious" United States. It is pertinent to point out that of all the business interests anxious to see these federal "gifts" made an economic benefit to the communities, the public utility companies top the list, since their stake in the community is large and their very existence will be threatened if the power is not sold on an economic basis. Further, they know something about selling power. As a matter of fact their aid to the government and to planning bodies has already been generous and effective, and these organizations in the Northwest have begun to recognize the large potential value of having the public utilities as allies.

Air view of the Bonneville site with proposed works drawn in by the artist. Bradford Island forms an integral part of the dam

Ariel photo of Boulder Dam, now practically completed, clearly shows the structure, power house and the vast area behind the dam that soon will be inundated by the impounded waters of the Colorado .

Built Today for Tomorrow's Markets

SOUND economic advancement of southern California and the Pacific Southwest underlies the inception of the Boulder Canyon project and the construction of the gigantic dam at Black Canyon on the Colorado River. First, and probably most important is flood control. By regulation of flow provided for by the tremendous reservoir behind the dam, the threat of disastrous floods will be removed from the rich irrigation districts in the extreme southeastern portion of California, notably among which is the Imperial Valley.

The second sound objective of the Boulder Canyon project is the storing of water and delivering thereof for the reclamation of land and other beneficial purposes within the territorial United States. Probably the most beneficial aspect of this provision in relation to the economic development of the Pacific Southwest is the stipulation giving Los Angeles and adjacent cities a continuous flow of 1,500 sec.-ft. of water to augment their present supplies. The unprecedented growth of population in the southern California Coastal Plain in past years has necessitated a development of approximately four-fifths of the natural water supply contiguous to that area. The deficiency in local waters had become a matter of serious concern and is now alleviated by the Colorado River allotment which should provide an ample water supply for many years to come. This insurance of an adequate supply will permit uninterrupted commercial and industrial expansion not only of the Pacific Southwest but of California as a whole, water being indispensible to the development of this area.

Also important, in connection with water supply and as a correlated part of the Boulder Canyon project is the All-American Canal which provides for a main canal 80 mi. long connecting the Colorado River with the Imperial Valley and 130 mi. of branch canals supplying an arable area of approximately 1,000,000 acres.

Third factor leading to the construction of Boulder Dam is the generation of power, revenues from which are expected to supply most of the income needed to make the project a self-supporting, self-liquidating undertaking. When it is considered that electrical energy is to be purely a by-product of released storage as dictated by irrigation and other requirements, the feasibility of this objective is a matter of much conjecture by many economists and engineers.

Hydrology of the Colorado River

Draining a basin of 240,000 sq. mi., the Colorado River is noted for a tremendous volume of flow, sudden and severe floods, and the extremely high silt content of the water. From records over a 32-yr. period the annual average flow has been estimated at 18,000,000 acre-ft. During this period the minimum flow at Yuma, Ariz., was 7,000,000 acre-ft. annually and the maximum flow, 25,000,000 acre-ft. annually. In this connection it is interesting to note that for the first nine months of 1934 the recorded flow was 3,719,000 acre-ft., or less than 20 per cent of the average for the 32-year period immediately preceding.

Upon its completion, the 700-ft. dam in Black Canyon will impound a reservoir having a capacity of 30,500,000 acre-ft. Of this reservoir 9,500,000 acre-ft. must be reserved at all times for storage of flood waters of the river; from 5,000,000 to 8,000,000 acre-ft. have been set aside as a silt pocket behind the dam; and from 12,000,000 to 15,000,000 acre-ft. is considered as active storage for irrigation, power and other requirements. As previously mentioned, power will be generated only as a by-product of the waters released from storage in accordance with the following program of water allocation.

Claims of various states on the usage of Colorado River water at times presented almost insurmountable obstacles to the sponsors of the Boulder Canyon project. When the claims of six states had been adjusted satisfactorily, the project was started, although Arizona is still bitterly opposed to certain provisions regarding allocation of water and power rights.

According to present contracts, Arizona will be entitled to 2,800,000 acre-ft. (this is still in dispute), Nevada is entitled to 300,000 acre-ft., and California has been allocated 4,400,000 acre-ft., 1,500 sec.-ft., or approximately 25 per cent of that volume being reserved for the exclusive use of the Metropolitan Water District which will

take its share from the reservoir behind Parker Dam now being constructed some 90 miles below the Boulder Canyon project. The remainder of the California allocation will be taken by the various irrigation districts. Under this agreement, the price paid by the Metropolitan Water District for its allotment will be 25 cents per acre foot. In making these allotments no consideration has been given to possible claims of Mexico for stored water.

Power Allotment

In releasing this volume of water to the Boulder Dam turbines under an average head of 530 ft. it is expected that the energy developed will be equivalent to 4,240,000,000 kw.-hr. of firm power and 1,500,000,000 kw.-hr. of secondary power. Through the provisions of the original Boulder Dam contracts, this power will be assigned as follows:

Metropolitan Water District Aqueduct, 1,526,500,000 kw.-hr.; State of Arizona, 753,200,000 kw.-hr.; State of Nevada, 753,200,000 kw.-hr.; City of Los Angeles, 551,200,000 kw.-hr.; Southern California Edison Co., Ltd., 381,000,000 kw.-hr.; Pasadena, Glendale and Burbank, 254,000,000 kw.-hr.

It is expected that the output of secondary power will be absorbed by the Colorado River Aqueduct pumping plants of the Metropolitan Water District which will require ultimately approximately 275,000 kw.

Power from Boulder Dam is delivered to the various distributional agencies on the high side of the station transformers, the price for firm power being 1.63 mills per kw.-hr. and for secondary or dump power, 0.5 mills per kw-hr., transmission facilities to be furnished by purchaser.

On this basis the revenue from power sales would be $7,057,900 from primary power and $275,000 from secondary power, assuming full utilization of the plant output.

Provisions also stipulate that in the event that Nevada and Arizona are unable to use their share of the power, it will be divided equally between the City of Los Angeles and the Southern California Edison Co. until such a time as those two states can utilize the energy economically. Inasmuch as there is no immediate prospect of these states absorbing their share, it appears that the City of Los Angeles and the Edison company would be obligated to take totals of 1,314,400,000 kw.-hr., and 1,144,800 kw.-hr., respectively.

Delivery of power, due to rapid construction, will be possible some time in 1936 (if stored water is available), at which time the City of Los Angeles will be in a position to take its full allotment. The Southern California Edison Co., on the other hand, is contracted to take power in 1938 and then only 55 per cent of its allotment the first year. As yet transmission facilities for this allotment have not yet been provided and, even though the initial installation will be completed early in 1936 it is questionable whether any of the other distributing agencies will accept power before 1938 or 1939.

The advent of over 4,000,000,000 kw.-hr. of firm power in the area within 300 miles of Boulder Dam will have a tremendous economic significance both on the territory and on the electrical industry. Within this 300-mile radius are thirteen California counties, having a population of 3,332,000 people; eight Arizona counties with a total population of 278,000; six Nevada counties with a total population of approximately 35,000; and thirteen Utah counties with a population of approximately 125,000. In 1935, the population of this area represented roughly 1,000,000 domestic electrical consumers including electrified farms, 123,241 commercial and small power customers and 22,772 wholesale or large power consumers. To these customers the electrical utilities sold 2,800,000,000 kw.-hr. directly, and in addition sold 240,000,000 kw.-hr. for electrical railway use and 200,000,000 kw.-hr. for street lighting. Losses and company use brought the total generation in 1933 in this area to almost exactly 4,000,000,000 kw.-hr.

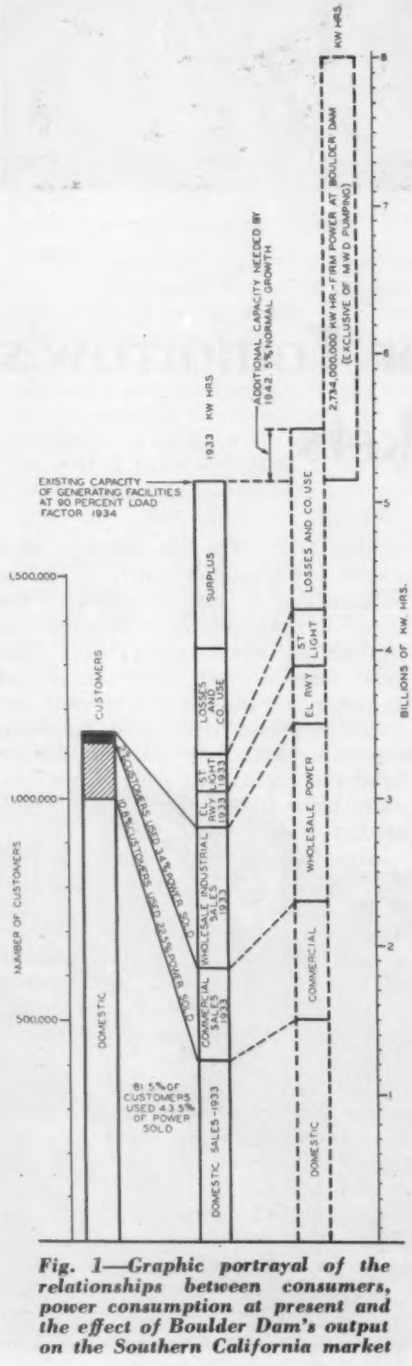


Fig. 1—Graphic portrayal of the relationships between consumers, power consumption at present and the effect of Boulder Dam's output on the Southern California market

Generating facilities at the present time total 1,444,277 kw. At a load factor of 40 per cent, these generating facilities are capable of producing roughly 5,000,000,000 kw.-hr. or 1,000,000,000 in excess of the amount required in 1933. With the addition of the firm power from Boulder Dam, exclusive of the Metropolitan Water District requirements, the present per capita generation of 1,200 kw.-hr. in this territory will be increased to approximately 2,000 kw.-hr. per capita should it be possible fully to utilize the output of Boulder Dam by 1939. This figure does not include the present existing surplus of roughly 1,000,000,000 kw.-hrs. now existing in the area.

Power Market

In analyzing the potential utilization of electrical energy in the Pacific Southwest, the physical characteristics of the area and the records of past energy consumption will serve as a guide. In common with other Western areas, agriculture is the supporting framework for the commercial structure in this territory. Fertile soil, a favorable climate and the high market value of semi-tropical crops characteristic of the Coastal Plain of southern California gave impetus to a rapid growth in population which was augmented by a favorable climate for manufacturing and by the commercial needs of a rapid population growth in the area. Most of the territory capable of being served with Boulder Dam power other than southern California consists mainly of arid plateaus and desert unfavorable to agriculture or other development except mining and metal production.

In considering southern California, the discovery and development of oil and the growth in manufacturing both

have contributed heavily to the economic development of this section. It is obvious from the population figures that southern California is the most logical place to expect a rapid growth in electrical consumption.

Taking the territory as a whole, certain significant factors in relation to the possible utilization of additional energy have been shown graphically in Fig. 1. An inspection of this sketch reveals that the domestic consumers representing 81.5 per cent of the total, use 43.5 per cent of the energy sold. Commercial and small power customers representing 10.8 per cent use 22.5 per cent of the power sold. The wholesale or large power users representing 2 per cent of the total use 34 per cent of the power sold.

Also shown is the projected consumption of kilowatt-hours of the various groups of consumers in 1942 calculated on a 5 per cent annual growth basis. If this actually occurs, it will be seen that existing generating capacity would be capable of supplying the demand at that time with the exception of approximately 350,000,000 kw.-hr. To this latter figure has been added the 2,750,000,000 kw.-hr. of firm power from Boulder Dam which has been allocated to the distribution agencies in southern California. This block of energy is almost wholly surplus and, should the Federal government decide to force its output on existing utilities under policies similar to those pursued in the Tennessee Valley at the expense of present facilities, very serious economic consequences may result.

That Arizona and Nevada will be unable to use the 753,200,000 kw.-hr. allocated to them for many years is evident from the fact that in 1933 the total energy generated in the former was 296,824,000 kw.-hr. and in the latter 21,953,000 kw.-hr. In the peak year Arizona generation was 404,309,000 (1931) and Nevada 54,935,000 (1928).

This latter figure is less than one-thirteenth of the amount assigned that state.

On the other hand, conditions are favorable throughout the entire area for a greatly increased power consumption per capita in the domestic and commercial fields.

Among the large power consumers, the low cost of natural gas offers serious competition in many processes. Low power rates in the area have contributed much to the electrification of Pacific Southwest industry and the continuance of favorable electrical schedules, cheap water and a continued growth in population will attract additional industry to the manufacturing areas of southern California.

Status of the Colorado Aqueduct

Item	*Description*	*To Be Purchased*
AQUEDUCT	Total length, 241.5 miles; concrete lines tunnels, 91.5 miles—excavation 60 per cent completed; conduit 55.6 miles; lined canals, 64.9 miles; pressure lines and siphons, 28.3 miles; passage through reservoirs, 1.2 miles; profile elevation, 440-1807 ft.	
TRANSMISSION LINE	400 miles, 1-circuit, 230-kv. steel tower line connecting pumping plants with Boulder Dam. Initial installation 237 miles.	1936
PUMPING PLANTS* INTAKE	Static head 290 ft., ultimate capacity for (1,500 sec.-ft. flow) 61,000 hp. Initial installation (462 sec.-ft. flow) 22,800 hp. Substation capacity (ult.) 54,000 kva.	1937
GENE WASH	Static head 302 ft. Ultimate capacity 64,000 hp. Initial installation 24,000 hp. Substation capacity (ult.) 120,000 kva.	1937
IRON MT.	Static head 440 ft. Ultimate capacity 94,400 hp. Initial installation 11,700 hp. Substation capacity (ult.) 30,000 kva.	1937
EAGLE MT.	Static head 438 ft. Ultimate capacity 91,200 hp. Initial installation 35,400 hp. Substation capacity (ult.) 84,000 kva.	1937
HAYFIELD	Static head 440 ft. Ultimate capacity 94,400 hp. Initial installation 35,400 hp. Substation capacity (ult.) 84,000 kva.	

Note: Four pumping plants will be served from the 230,000-volt transmission line by a 230/6.6-kv. main and transfer bus substation. Intake plant is served from Gene by two 69-kv. lines. Pump motors will be of vertical synchronous type operating from 6.6-kv. bus; sizes and speeds depend upon static head of particular pumping station.

*Pumping plant power figures for ultimate development are based on 8 pumps operating. An additional standby pump will be installed at each plant.

Probably the greatest potential source of large power consumers is in the development of the rich mineral resources of Arizona, Nevada and Utah. The extreme low cost of power available at Boulder Dam would be an attractive factor in metallurgical and chemical processes utilizing large amounts of energy. However, such developments await more favorable market prices for their output.

It has been suggested by some that the surplus power at Boulder Dam could be disposed of economically in southern California by diverting the flow of power from the Big Creek development of the Southern California Edison Co. northward. The possibility has been thoroughly discussed by A. H. Markwart, vice-president in charge of engineering, Pacific Gas and Electric Co., in his article entitled "The Engineering and Economic Aspects of the Power Surplus" (ELECTRICAL WEST, June, 1934, p. 43). Mr. Markwart estimates that at the present time there is a surplus of between 1,500,000,000 and 2,000,000,000 kw.-hr. in northern California which must be disposed of before power now used in southern California could be utilized. However, he estimates that it is physically and economically possible to dispose of approximately 2,000,000,000 kw.hr. from southern California in addition to the 2,000,000,000 kw.-hr. output of the Big Creek hydro development should load requirements in central California justify this exchange. Considering central and southern California as a unit, Boulder energy is favorably situated for absorption over a wide area providing a return to the normal growth curve of the last decade requires generating facilities in addition to those now only partially loaded by the present demand.

Viewed from the optimistic standpoint in which the country as a whole returns to normal economic condition in the near future and to which may be added the liberal education in load building which the utility commercial departments have gained in the past few years, it seems feasible that normal load growth plus energetic load building may dispell power surplus bugaboos from California. On the other hand, a continuation of current economic conditions but slightly improved for the next few years confronts the electrical industry with the possibility of a very serious problem of surplus power.

Boulder Dam is intended to be a self-liquidating project—the revenue from water and power being set up as to be sufficient to cover a sinking fund for cost amortization at 4 per cent and provide for operation and maintenance expense. The $7,000,000 a year revenue from electrical energy over a 50-year period would return almost twice the initial investment of $165,000,000. After construction costs have been completely amortized, revenues in excess

of operation and maintenance would be allocated 18¾ per cent to Arizona, 18¾ per cent to Nevada and 62½ per cent to the Federal government.

Indications at present suggest that the Los Angeles Bureau of Power & Light is the only distributing agency which will be in a position to take power from Boulder Dam in 1937 and 1938. This does not reduce the surplus in the territory, because the Bureau of Power and Light has been purchasing some 400,000,000 kw.-hr. per year from the Southern California Edison Co., who will therefore be obligated to dispose of this amount of power elsewhere. While the Metropolitan Water District is expected to take 1,500,000,000 kw.-hr. of firm power and an equivalent amount of dump power for pumping on the aqueduct, there is no definite indication as to when the District will be in a position to absorb this amount of power.

Private utilities are not obligated to take power until 1938 or 1939 and probably will be able to assume their portion of the load only by shutting down their existing plants. In this connection there is no possible saving in the costs of power because 75 per cent of the energy consumed in southern California already is generated by water and hence the saving on fuel, when using Boulder power, will be minimum. Further complicating the situation is the fact that, for the best service, additional steam plant capacity will be required to pick up load that might be dropped through outages either at the Boulder Dam power house or associated transmission lines. The smaller cities, Pasadena, Glendale and Burbank already have asked for extensions in time of three, five and seven years, respectively, to cover a load development period and for a reduction in price from 1.63 mills to 0.5 mills during the period.

Balancing the factors incurred by early completion of Boulder Dam and power house is the extremely low run-off of the Colorado River in the past two years. Inasmuch as 7,500,000 acre-ft. must be impounded behind the reservoir before power is generated, it is possible that several years might be required to fill the reservoir to this capacity should the flow of the past two years remain at the minimum level of the past year.

Because no forecast can be made of business conditions, Colorado River run-off, or the policy of the Federal government in disposing of whatever surplus power may be available at Boulder Dam it is difficult to prophesy just what effect the completion of the project will have on the electrical industry.

Status of Boulder Dam Project

Equipment	*Description*	*Purchased*	*To Be Purchased*
DAM	Arch gravity type Height 726 ft. Maximum head 589 ft. Storage 30,500,000 acre-ft. Firm power 4,240,000,000 kw-hr. annually (663,000 continuous hp.) Installed capacity, ultimate, 1,320,000 kva. Initial installation 410,000 kva.	Completed 1935	
PRIME MOVERS	15 vertical reaction turbines rated 115,000 hp., 150-180 r.p.m.	4 in 1933	2-1935 3-1937 4-1941 2-1944
	2 vertical reaction turbines rated 55,000 hp., 257½ r.p.m.	1 in 1933	1-1938
GENERATORS	15 82,500 kva., 150-180 r.p.m., 13,200 v., 3-phase, 50-60 cycle	4 in 1933	2-1935 3-1937 4-1941 2-1944
	2-40,000 kva., 257½ r.p.m., 13,200 v., 3-phase, 60 cycle	1 in 1933	1-1937
TRANSFORMERS	7 oil-filled, 16,320/287,000 v., 60 cycle	1934	4-1935 7-1937 6-1941 3-1944
	4 oil filled, 13,200/138,000 v., 60 cycle	1934	4-1937
LOW VOLTAGE SWITCHING EQUIPMENT **HIGH VOLTAGE SWITCHING EQUIPMENT**		Oil circuit breakers, etc. for initial installation purchased in 1934	As required by station expansion
TRANSMISSION LINES	1-287 kv., 2 circuit, 265 mile steel tower line—L.A.B.P. & Lt.	L.A.B.P. & Lt. line complete	
	1-220 kv., 1 circuit, 400 mile steel tower line for Metropolitan Water District		1935-36
	1 line for Southern Calif. Edison Co. Ltd. (design not announced)		Probably in 1938

Status of Parker Dam Project

Equipment	*Description*	*Purchased*	*To Be Purchased*
DAM	Arch type Height 325 ft. Maximum head 85 ft. Practically stream flow plant Installed capacity 80,000 kw.	Contract let Aug., 1934	
PRIME MOVERS	4 vertical reaction turbines rated 27,500 h.p., 240 r.p.m.		About 1950
GENERATORS	4-20,000 kw., 240 r.p.m., 13,200 v., 3 phase, 60 cycle		About 1950
TRANSFORMERS			About 1950
LOW VOLTAGE SWITCHING EQUIPMENT **HIGH VOLTAGE SWITCHING EQUIPMENT**			About 1950

+ + + by Electra's Husband

Concerning the Facts of Life

MOST of us can learn the facts of life from popular songs, but utilities are supposed to learn them from the handwriting on the wall. So here's my own handwritten fact which has to do with the life of private utilities: Sales and promotion must be so keyed up that two kilowatt-hours will be sold where only one is sold now.

The reason is obvious. The government-made power surplus must be taken over by the private utilities if the government is to be kept out of the utility business. To save its face and justify its action, the government must get rid of the surplus when it exists; if the private companies can't be the distributors, the government will be forced to.

So oil up the sales promotion machinery, bring out the advertising guns, and turn on the heat.

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A RATE expert testifying the other day for the city of Fresno, Calif., in its valuation case, said that he allowed nothing for good will in his figures because public utilities don't have any good will. "By the very nature of their business," he said, "they create antagonism, not good will."

This alarming news may be disheartening to those executives whose job it is to write reports and prepare charts which prove that customers and companies are getting more chummy. But, actually, it only goes to show how wrong experts can be. Probably the expert in question never even saw one of those public relations reports, else he would have known better than to make such a rash statement.

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PERHAPS the very nature of a public utility's business does create antagonism; if so, the nature of the business is at fault. I can think of a good many utilities who have worked so hard to develop their futures that they forgot to develop themselves. Right now all thought must be given to the "corporate personality"—the *apparent* nature of the business.

Electra didn't quite understand this, when I talked it over with her, so I explained it thusly: The nature of an electric company's business is the supplying of electricity, but no customer of my acquaintance ever got down on his knees to thank heaven that his lights burned when the switch was turned on, or that water flowed when the faucet was turned on. The only reaction the customer gets is the one when the bill is paid.

Yet, consider the hotel industry. The nature of that business is the supplying of rooms for weary travelers. There is a lot of talk about the high rates some hotels charge, but other hotels charge even more and customers are happy to pay the tariff. Why? Simply because the better hotels so disguise the actual nature of their business with extra services that the apparent nature of their business is seeing to the comfort and satisfaction of patrons. And do the patrons eat it up! A 5-cent newspaper at your door in the morning and a 10-cent bunch of flowers on the writing desk takes the sting out of the extra 50 cents a day you pay for the room.

The public utilities would do worse than to adopt a similar theory.

•

INSTEAD of appropriating a million dollars for an investigation here and a half million for a power study there, it might be easier on the taxpayers if Congress would have the Literary Digest conduct a straw vote on the whole idea of utilities. That would be a far less expensive method of getting the facts.

•

EXECUTIVES are and should be the best salesmen in the business. And when each power company executive arms himself with an order book and closes each business call with a sales talk, then more of the rank-and-file employees will get the sales spirit. And, gosh knows, could there be any doubt that each executive has all the latest appliances, so that he can talk from experience?

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UTILITY taxes continue to increase about one per cent a year, here in the West. If this keeps up, the utilities will be in a good position to demand a subsidy because all the other tax-collecting agencies will be out of business.

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HAVE you noticed that the municipal ownership advocates suddenly have forgotten about the Ontario Hydro-electric bubble? That's because the Ontario bookkeepers are having such a devil of a time trying to make red ink look black. The 1934 report, due soon, probably will be required reading for students of legerdemain.

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JUST how long any manager lasts in the job is becoming a sporting proposition in one of our "model" municipal utilities here in the West. Another conscientious and energetic manager charges that he has been forced to "resign". The same thing has happened to two predecessors in as many years. It seems, one of the resignors told Electra and me over a consolatory glass, that it doesn't do to take your job seriously. That is, you shouldn't insist that some of the political big shots of town, even though they run nice businesses and can afford it, pay their bills. Some of these "influential citizens" haven't paid an electric bill for a couple of years and sort of resent the idea that they should change their habits at a time like this. We are all familiar with the claims that consumers will pay less for electricity under public ownership, but in this town if you are a good politician you don't have to pay ANY electric bill at all. Viva! Utopia!

Bill Jones Speaks + + +

about 2 plus 2

"I SUPPOSE", said Bill Jones as he oozed into the Manager's office one morning, "that you are quite capable of giving the answer to the problem of what 2 and 2 make?"

"Probably. What is this? Is it supposed to be funny, or are you trying to give me an intelligence test? Anyway, if it will make you happy, I will play. Obviously the answer is 4."

"No," said Bill, "it isn't an effort to be humorous, and if I were seeking information about intelligence quotients, I would spend my time where results would be more promising. Anyway, your answer merely confirms a long-entertained conviction that the organ which you flatter by calling it 'mind' is ossified and is suffering from an advanced state of obsolescence. Any old Has-Been would naturally be expected to say that 2 and 2 make 4, but any disciple of the 'Abundant Life' could tell you, and has been telling you for a couple of years, that 2 and 2 make 22. And that is one of the fundamental differences between the New Dealers—(or are they New Orderers now)—and your mental contemporaries, the Egyptian mummies. For 2,000 years and more the mummy also has been thinking that 2 and 2 make 4. Perhaps it would be more nearly accurate to say that without doing any thinking at all, he has taken it for granted just because somebody else has told him it was so."

"All right," said the Manager, "having gotten that out of your system, what about it?"

"What do you know about your Sales Department? Is it worth what it costs, or more, or less? How much of the business credited to it would have come to the company anyway, even if you didn't have a Sales Department?

"Well—uh—quite so," hesitated the Manager. "I don't think that I really know a lot about it. A Sales Department is sort of like advertising. You can't actually put your fingers on direct results which justify the expenditure, but experience tells us that if we stop, we soon will wish we hadn't. I think that my Sales Department is as good as any of them.

"Just about what I expected you to say," said Bill, "and just about what I would expect practically any Manager to say. And here is one reason. A few years ago a small company was very proud of its achievement of placing ranges on its lines. It was the first time they had made a real effort to speed up their range load building. When the smoke cleared away, they had sold a thousand ranges and their residential consumption had increased from 650 to 763 kilowatt-hours per annum. The Manager was delighted and authorized a very liberal additional appropriation to cover free wiring, more salesmen, etc. for the following year. The next year the selling expense per range went up very materially, as was expected the case would be. The results were deemed more or less satisfactory until, at the close of the year, the Manager suddenly discovered that the annual Kilowatt-hour consumption, instead of continuing to increase, had actually decreased from 763 to 718; and then he went up into the air. 'Why,' he yelled, 'I gave you a free hand, let you spend $60.00 more per range than we ever spent before, and instead of gaining, we are losing. What is the sense of spending big money for load building if the more you spend, the smaller the load? One thing this company is going to do is to have a new Sales Manager.' And it did.

"What happened was this:

"The first year was the valley of the depression for that community, and the company lost some thousands of meters, and of course the city lost population. Under such circumstances the Kilowatt-hour consumption per meter was almost certain to go up, and it did, very materially distorting the picture. The second year some thousands of meters were reinstalled, and empty houses became filled again. The increase of new customers was entirely out of proportion to the saturation increase of ranges, and so every new lighting customer diluted the per capita consumption average.

"The answer was always 2 and 2 make 4, but the Manager read it to be 22.

"Some time I am going to preach a sermon 'About the tragedy of knowing too much.' One of the peculiar obsessions which strikes Sales Departments is that much credit will attach to them if they can present a brand new idea—one that is really original, that will 'knock 'em dead.' There ain't no such animal, and there can't be. Selling is merely human nature, and human nature has never altered. All of the possible changes had been made centuries before that original New Dealer, Noah, after a marvelous joy ride, began to entertain doubts and wonder where and when he was going to land. The Sales Manager who thinks he has hit on a new attack is deceiving himself and unduly advertising his self-inflation. If he will cease wasting his company's time and his own energy trying to attain the unattainable, and instead will devote himself to doing the old job just a bit better than he had ever done it before, he'll be worth his salary. And he'll do his job progressively better as he opens his mind to the fact that other companies have Sales Directors who also have brains, and, what is not of less importance, experience.

"Did you ever overhear a bunch of doctors discussing the mental and professional attainments of one of their group who isn't present? If so, you probably rushed into the drug store, bought a bottle of Lydia Pinkhams, dosed yourself, and let it go at that. The other fellow's sales plan is as full of holes as is a ladder. 'Yes, pretty good, but not very brilliant and not much kick in it after all.' Well the part of the universe you and I are interested in is suffering right now from too much brilliancy, too little common sense and constructive perspiration.

"Insist that your Sales Manager visit and talk with other Sales Managers; but first of all, if necessary, take him across your knee and make him understand that he is to *learn* something from his visits, and then if he comes back only with the idea of how much better he is than the other fellow, spank him again. Maybe you should fire him. What you require from him are results and not methods. His value to you is his ability, if any, of observing and evaluating information—not in taking over the self-imposed tasks of the Creator. There never was a Sales Manager so poor in intellect attached to a company so insignificant that he doesn't do some parts of the problem better than his highest-salaried-visitor.

"Upon second thought it occurs to me that possibly I have treated too casually the adherence of the mummy to the archaic idea that 2 and 2 make 4. An idea that has persisted from many centuries B.C. until 1932 perhaps is entitled to some respect after all. Ideas of that sort seem to run in cycles. Possibly some day, perhaps at the end of another thousand years, the notion that 2 and 2 make 4 may again be in style."

¶ *So that you may derive the full use and value of the following pages, here is an interpretation of*

What the Figures Mean to—

EVERYONE in the industry. Figures, after all, are the only barometer of selling. In your car you are provided with instruments—a speedometer, oil gage, ammeter, temperature indicator—all to help you drive your car more intelligently, more effectively. Business, like a car, can be driven without such helps, but not nearly as well. In succeeding pages are the sales figures of dealers and utilities of the West, gathered with the assistance of both, for the past year. Also are the most intelligent estimates available of what both believe will be their sales this new year. These figures and the reports accompanying them have a special value and significance to everyone in the industry, no matter in what vocation.

Dealers—will find these figures a guide to their operations as a retailer. They give a picture of what was done last year, and what the objectives are this year. Against these the dealer can measure his own part with greater intelligence.

Knowledge of the utilities' program gives him a chance to organize his own efforts to utilize the benefits of their general promotional efforts and thus cash in on more sales for himself at the same time. He can plan his stock orders, arrange for dealer helps from manufacturers, plan his advertising and display. Wise use of this information will bring better sales results and greater satisfaction.

Contractors—will find that though the codes do protect their competition from the ruthless chiseling of the past they do not create any new work. Promotional work by the industry is the only thing that will MAKE NEW WORK. Appliance sales mean loaded wiring facilities and a need, even if not realized by the public, for more wiring. The unexpectedly large sale of I.E.S. lamps indicates a real hunger for better lighting equipment. Knowing of the proposed sales programs of utilities and dealers, contractors can organize their efforts to get more wiring jobs as a necessary adjunct to the appliances sold. The Housing Act loans require wired-in appliances, which create work.

Wholesalers and Distributors—can plan their services to their trade with a better foreknowledge of the market. They can prepare stock movements to have adequate supply on hand for contemplated campaigns. From past campaigns they can determine trends (such as indicated by the I.E.S. lamp sales of 1934) and prepare to anticipate seasonal demands. From these reports they can prepare their sales forces to contact and assist their dealers at the right time to derive the most benefit from the utility promotional drives. All of this can be converted into better volume and profitable operations.

Manufacturers—can learn from these figures and reports the size and location of markets, see trends and prepare their merchandise to meet the demand. Promotion, advertising, and stock can be planned for special seasons or campaigns. From the figures they can gage their own proportion of last year's sales and gain an intelligent appreciation of the market expectancy for this year. Also they can better plan their western representation and sales effort, thus preventing unnecessary mistakes and costly errors in marketing.

There is meat for everyone in the following pages. Read on—

Kw.-Hr. Per Residential Customer

Company Name	1934	1933	1932	1931	1930
Alameda, City of	758	...	...	...	...
B. C. Elect. Ry., Vancouver	1,000	...	...	...	940
B. C. Elect. Ry., Victoria	753	772	740	710	740
Burbank, City of	533	...	...	...	...
California Oregon P. Co.	1,618	...	1,875	1,884	1,879
Cent. Ariz. Lt. & P. Co.	...	...	745	727	665
Coast Co. G. & E. Co.	...	653	716	733	704
Glendale, City of	620	...	...	...	...
Idaho P. Co.	1,220	...	...	...	1,447
Los Angeles Bureau P. & Lt.	588	580	595	550	521
Los Angeles Gas & Elect. Co.	...	...	...	...	...
Montana Power Co.	705	...	739	729	695
Mt. States Power Co.	792	...	...	...	...
Northwestern Elec. Co.	1,200	1,210	1,294	1,259	1,195
Pacific Gas & Elect. Co.	726	733	756	758	723
Pacific Power & Lt. Co.	1,236	1,231	1,341	1,310	1,184
Portland G. E. Co.	991	994	1,053	1,028	1,004
Pub. Serv. of Colo.	498	...	...	450	434
Puget Sound P. & Lt. Co.	993	1,021	1,095	1,115	1,107
San Diego Cons. G. & E. Co.	573	622	636	597	551
San Joaquin Lt. & P. Corp.	972	912	947	942	916
Seattle, Ltg. Dept.	1,050	...	1,014	1,102	1,084
Sierra Pacific Power Co.	922	893.2	930	885	781
So. Cal. Edison Co.	680	681	728	720	691
So. Colo. Power Co.	580	...	...	595	561
So. Sierras Power Co.	915	930	940	910	807
Tacoma, Dept. Pub. Util.	...	1,410	1,551	1,551	1,494
Utah Power & Lt. Co.	716	705	...	772	725
Vallejo Elect. Lt. & P. Co.	789	...	...	747	609
Wash. W. P. Co.	1,610	1,763	1,806	1,804	1,710
Western Colo. P. Co.	684	485	...	...	...

Ranges, Water Heaters, Refrigerators

Company Name	Ranges 1934 Sales	Ranges 1935 Quota	Water Heaters 1934 Sales	Water Heaters 1935 Quota	Refrigerators 1934 Sales	Refrigerators 1935 Quota
Alameda, City of	106	...	56	...	10	...
B. C. Elect. Ry. Co., Vancouver	400	300	220	250	215	235
B. C. Elect. Ry. Co., Victoria	65	100	35	50	75	100
Burbank, City of	63	...	4	...	136	...
California Oregon P. Co.	893)	3,000	199)	1,500	373)	1,800
Mt. States P. Co.	1,204)		158)		855)	
Central Ariz. Lt. & P. Co.	...	...	...	...	...	...
Coast Counties G. & E. Co.	...	...	...	...	...	...
Glendale, City of	272	...	...	...	...	...
Idaho P. Co.	1,286	1,405	383	420	2,372	3,230
Los Angeles, Bureau P. & Lt.	884	1,100	132	...	...	...
Montana P. Co.	374	359	...	...	1,569	1,503
Northwestern Elect. Co.	537	550	87	200	2,137	2,468
Pacific G. & Elect. Co.	2,479	4,000	2,354	3,000	24,275	27,000
Pacific P. & Lt. Co.	486	540	376	540	635	586
Portland G. E. Co.	1,286	2,000	552	1,200	708	...
Pub. Serv. of Colo.	196	225	17	10	1,376	1,435
Puget Sound P. & Lt. Co.	1,670	5,500	1,084	5,200	4,182	700
San Diego Cons. G. & Elect. Co.	229	300	32	500	3,500	4,000
San Joaquin Lt. & P. Corp.	1,212	1,500	634	750	5,238	5,120
Seattle, Ltg. Dept.	1,153	1,500	279	500	198	400
Sierra Pacific P. Co.	431	500	84	100	365	400
So. Cal. Edison Co.	3,219	4,600	565	2,000	17,867	22,000
So. Colo. P. Co.	124	228	58	120	816	350
So. Sierras P. Co.	506	...	222	...	335	...
Tacoma, Dept. Pub. Util.	385	600	253	500	900	1,200
Utah Power & Lt. Co.	912	1,000	92	500	4,032	4,214
Vallejo Elect. Lt. & P. Co.	115	250	15	75	350	475
Washington W. P. Co.	561	750	396	1,575	3,489	3,850
Western Colo. P. Co.	35	50	...	25	205	72

See accompanying reports for interpretation and explanation of these figures.

Sales Review and Forecast + + +

Domestic Field Offers Greatest Opportunities

By W. C. MAINWARING
Merchandise Manager,
B. C. Electric Railway Co., Ltd.,
Vancouver

WE feel there has never been a time when the domestic field offered such wonderful opportunities to utility companies as at present.

The automatic electric storage type water heater offers load possibilities equal, if not in excess of the electric range.

The demand for better home lighting, which has been responsible for the quick acceptance of the portable indirect lamp, makes possible tremendous increased revenue at very little additional distribution cost.

It is our intention to conduct vigorous campaigns, particularly on load building appliances, during 1935 and we feel quite satisfied that a very material increase in domestic load will be the reward.

During 1934 there were approximately 400 electric ranges added to our mainland system, of which 130 sales were made by dealers. Our 1935 quota covering our own sales is 300 and dealer sales should run about 100 more.

During a four month period commencing April 1st we offered a special inducement of $45.00 free energy to all customers purchasing and installing electric ranges, this amount to be credited on their monthly account at the rate of $2.50 per month for eighteen months. This undoubtedly helped our range sales considerably although we feel that the market insofar as our customers in the higher income groups is concerned is saturated to a point that we cannot expect to install many more ranges on our present selling plan and must look to customers in the lower income groups for future saturation in any volume.

With this in mind we have developed a long term payment plan, which although not yet approved, we hope to put in effect early this year. Under the terms of this plan the customer would purchase an electric range over a period of years at the rate of $2.00 per month.

Our electric water heater sales during 1934 amounted to 220, of which approximately 175 were of the automatic storage type. Our quota for 1935 is 250. Up until two years ago our electric water heating effort consisted of promoting the sale of immersion type heaters on a flat rate of $3.00 per month on the 750-watt and $4.00 for 1-kw. size.

During 1933 we commenced an educational program on the new automatic storage type heater and have been making installations on a very conservative basis. No installation is made until the customer's home is carefully surveyed and the exact requirements understood. We then give the customer an estimate on the cost of operating this heater, which we supply at a rate of 8 mills, on an "off peak" basis, and without any doubt this group, numbering approximately 250, are among our best satisfied customers.

We have been selling these water heaters on terms varying from $2.00 per month up, depending on size, and the payments spread over a period of six years. Although we have been selling units with galvanized tanks we are standardizing on monel metal tanks in the future and sell only this type.

Our refrigerator sales during 1934 amounted to 215 units and we have a quota for 1935 of 235 units. No information is available on sales made by dealers but from the knowledge we have of some dealer sales we believe that our sales represent 50 per cent.

Our program for 1935 starts off with an indirect portable lamp campaign with an objective of 1,000 units, from which we expect to receive additional annual revenue of $6,000.00 per year. The particular lamp we are campaigning will retail for $16.00 and be sold on terms of $1.00 down and $1.50 per month. Following that we expect to start our range and water heater activities not later than March 1st. We will then start our refrigerator activity about April 1st, and while these are being carried through until July 31st, at the same time we will be conducting sales activities on washing machines, ironing machines and vacuum cleaners.

During August we usually release most of our merchandise staff for summer vacation and commencing early in September we devote considerable attention to the sale of radio sets and tube testing in the homes of our customers. Our tube testing has been particularly successful, resulting not only in the sale of approximately 20,000 tubes annually but also bringing into service many hundreds of sets that were not in use and also bringing up prospects with old and battery operated sets.

New Consumers and Load Added to Island System

By S. J. HALLS
Manager, Light & Power Dept., B. C. Electric Railway Co., Victoria

THE Vancouver Island operations of the company made steady progress in the past year; 728 new domestic consumers were connected up, adding 1,700 kw. to the system; average domestic consumption for the year was 753 kw.-hrs.

In the industrial field there is a much better feeling prevailing, particularly in the lumber industry, and we contemplate serving a number of new saw mills with power this Spring.

At the present time we are constructing a 60 kv. transmission line from Bamberton (near Victoria) to the city of Duncan for a load of about 2,000 kva.; energy will be taken in bulk by the Nanaimo-Duncan Utilities Corp. for distribution by them in the area served by that organization and extending northerly approximately 45 miles.

As in the past our merchandising has been in friendly cooperation with local dealers. During 1934 a total of 65 electric ranges, 35 water heaters and 75 refrigerators were added to our Island system; quotas for 1935 have been placed at 100 electric ranges, 50 water heaters and 100 refrigerators. We shall carry on indirect lamp and better lighting campaigns; washers, ironers, cleaners, radio, tube testing, etc. are also among contemplated activities.

Christmas lighting and electrical decorations generally were made a special feature during the month of December, and it is proposed to carry out for the festive season a comprehensive scheme next year in both business and residential areas, and by these attractions assist to still further develop the winter tourist trade of Victoria.

●

Mining and Lumber Build Back Power Loads in B. C.

By EDMUND E. WALKER
Sales Engineer, B. C. Electric Railway Co., Vancouver, B.C.

IN THE industrial power field the outstanding feature during 1934 was the revival in the lumber and shingle industry. Many mills were reopened and many new mills built. All lines of industry, however, generally speaking, showed substantial improvement over the previous year.

Mining operations, during 1934, were of considerable interest to us. Our subsidiary company, the Bridge River Power Co., installed a 5,000 hp. unit and 60 miles of transmission line in the Bridge River area, located some 135 miles north of Vancouver. Six mines and 200 smaller consumers were connected on this system during the year.

In our agricultural division the increased price of dairy products and the prospect of stabilization in the milk industry, have resulted in improvement. Substantial reductions in lighting rates in rural areas were put into effect by us and this, combined with the general improvement, has resulted in the largest percent increase per customer of any class of load. Our agricultural division spent a busy year promoting the use of electricity on the farm and our expectations are that this year will see continued improvement.

During 1934 our commercial lighting division tied in with the continent wide "Better Light-Better Sight" campaign. Sight meters, commercial lighting demonstration kits were purchased and put into use and the customers systematically called on. This not only resulted in a substantial increase in lighting load, but also offset the tendency to use lamps of higher voltage than standard.

The kilowatt-hour consumption for our lower mainland system during 1934, including flat rate water heaters, was 1,000 kw.-hr. per customer per year. The flat rate consumptions of course are on an estimated basis.

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Substantial Increases in Agricultural Power Uses

By GLENN JACKSON*

Vice-President in Charge of Sales, California-Oregon Power Co., and Mountain States Power Co., Medford

PERHAPS the most important activity in our electrical sales during the past year resulted from a revision of our rural electrification and commercial power sales departments and methods. This proved a wise decision for the results for the year show clearly that there have been added substantial increases in all classes of agricultural power. Our loads materially increased in irrigation pumping, in poultry and dairying electrification.

Likewise in the commercial department we were able to make good gains over the previous year. This was due chiefly to the increased activity in selling better lighting, in line with the national "Better Light-Better Sight" program. The increases in commercial load were better than the average for the past few years.

In domestic lighting we also were able to make a followup of the very successful kitchen lighting campaigns of 1933. Before the I.E.S. lamps were available we had made arrangements in San Francisco to obtain a quantity of indirect floor lamps of high wattage, and with the dealers pushed the sale of these lamps throughout the year. Altogether more than 3,000 of these lamps were sold by company and dealers in 1934.

We carried on with the dealers last year a successful cooperative refrigerator campaign, in which the dealers sold over two thirds of the total sales made. This, like the other campaigns, was carried on jointly in both companies. On ranges we still have to carry the major responsibility of selling, although the dealers are now more interested in these appliances than they have been for years.

Our main program for ranges resulted in the sale of over 2,000 ranges last year. Of these 893 were sold on the Copco system, and 1,204 on the Mountain States system. Our quotas for next year for both systems will total 3,000 more ranges, we hope.

The refrigeration campaign of which I have just spoken, resulted in the sale of 373 refrigerators on the Copco syster, and 855 on the Mountain States system. Our quota for this year, with the help of dealers, is set at 1,800 refrigerators.

Water heating results for last year were not so satisfactory, but since we have no special or off-peak rates, were fair under the circumstances. On the Copco system there were added 199 water heaters; on the Mountain States system, 158. We have set a more ambitious quota for 1935, with 1,500 water heaters as our goal.

The average kilowatt-hour consumption per domestic consumer on our California-Oregon systems continued high, at 1,618 kw.-hr. On the Mountain States system, including a property in Wyoming where natural gas use brings down the average for the system, the consumption was 792 kw.-hr.

We plan to continue actively to develop every bit of electrical business that our wide and scattered territories with their diversity of conditions and opportunities will permit.

*Reported by telephone.

Pacific Northwest...

Helped With Financing of Range Wiring

By A. ANDERSON

Range Department, Sales Division, Dept. of Public Utilities, Tacoma, Wash.

THIS department of the city's utilities merchandises ranges and water heaters only. Our program for 1934 included the trade-in of old cooking equipment and the financing of wiring up to $35. No special program has been worked out for 1935.

Sales of ranges by the city totaled 285; by dealers, 100, in 1934. In 1935 the estimated quota is about 600 ranges. The city sold 103 water heaters; dealers 150, in 1934, and in 1935 we expect another 500 water heaters will be sold. Dealers in Tacoma sold 900 refrigerators in 1934, and it is estimated that there will be 1,200 sold in 1935.

As yet the compilation is not complete as to the average consumption per domestic customers in 1934. In 1933 it was 1,410 kw.-hr.

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Sold 5,000 I.E.S. Lamps During Light Campaign

By JOHN C. RYAN

Vice-President, The Montana Power Co.

OUR merchandising activities during the year 1934 included a laundry equipment campaign during the months of March and April, in which a total of 638 irons, 32 ironing machines and 119 washing machines were sold. During the months of May and June, our campaign featured electric refrigerators and ranges, and during this period 728 refrigerators and 112 electric ranges were sold.

During the month of September, our empty socket campaign resulted in the sale of 118,399 Mazda lamps, having a total wattage of 7,230,000, an average of 1.8 lamps per total customer. Sales for 1934 also included 2,448 electric irons, 104 ironing machines, 553 washing machines, 361 vacuum cleaners, 75 radiant heaters, 147 electric fans and 510 mixers.

Commencing in October and extending through the balance of the year, a "Better Light-Better Sight" campaign was put on, which resulted in the sale of 4,893 I.E.S. approved lamps.

Our program for 1935 includes special campaigns, featuring refrigerators, electric ranges, laundry equipment and small appliances. In addition, we will continue our "Better Light-Better Sight" activities and will have our regular "empty socket" campaign during September. The quota set includes 6,137 I.E.S. lamps, 2,131 table cookery appliances, 3,153 small appliances and 603 washing machines.

"I'll never play bridge at the Brown's again . . . my eyes can't stand their

"Fog light"

● At the Brown's, you say, you often find a heart hiding between four diamonds. Or a spade that you thought was a club?

You sit at the wrong side of the table, that's all. The light wasn't as good as it is at other homes where you like to play bridge.

If the Browns knew just what to do about it you would find their home much more pleasant to visit. Jack and Ellen Brown play a really fine game of bridge, but their lights are all wrong. It isn't worth the eye-headache afterward.

Dim light is proper—so is proper glare. Bright light can hurt the eyes. But there is no excuse at all for the in-between kind of light—"Fog Light." Your eyes are slow to complain, and they won't warn you of the strain. Nothing but the Sight Meter can tell you, accurately and scientifically, that the light over your own bridge table or favorite reading chair is the kind of light that causes fog-in-your-sight—eventually.

It is not the basis of any sight plotter—I know you [illegible] W. E. [illegible] 100 watt lamps for every purpose. Your eyes are quick enough to tell you when the light is not good enough for them. But they are not quick enough to tell you in time to prevent needless damage. Daylight Meter tells you.

"FOG LIGHT" is the danger-zone between useful light and dim light. It is, unfortunately, fair enough for any severe visual work, yet it gives no clear warning to your eyes. Your vision is adjusted to it by harmful tension, which, if sustained for a prolonged period, results in eyestrain. Only the Sight Meter detects "Fog Light" accurately and scientifically.

Listen over station KOIN to the Home Lighting Talk by Herrion May every Wednesday morning from 10:15 to 10:30

NORTHWESTERN ELECTRIC

920 S.W. Sixth Ave. at Taylor St.—ATwater 9431

Better Light • Better Sight

Ad No. 4836 — 8 col. x 12 inches

Journal, Dec. 16—Oregonian, Dec. 17—News-Telegram, Dec. 18

NOW WE CAN *Both* SEE!

TWAS wise father has put his reading lamp to double use. He found that when both he and his son shared the same light, neither one could really see properly. Having heard of the new certified lamps here's what he did:

He bought a floor lamp bearing a Better Light Better Sight approval tag and equipped with an indirect lighting reflector. In the sockets under the shade he put 60-watt lamp bulbs. In the reflector at the top he inserted a 300-watt bulb.

Now dad gets good light on his book or magazine, and he does it without robbing the boy of the light he needs. The whole room is pleasantly lighted by this modern lamp.

And here is something else to remember—light walls and ceilings help to increase light, protect eyes. Take care of those eyes of yours—have them examined regularly and give them the light they need.

MAZDA BUY 6 AT A TIME AND SAVE 10%

COUPON

FREE PRESENT this COUPON to any Radio or Electrical Dealer for a FREE copy of booklet on CARE OF YOUR EYES. You will find this booklet a valuable aid for BETTER SEEING.

bureau of RADIO AND ELECTRICAL APPLIANCES of San Diego County

Adv. No. 8—Union, Nov. 12—Tribune, Nov. 13—Sun, Nov. 14

The Cruelest Woman in the World

How lovely she looks—does [illegible]—how wise! But this woman is sacrificing the strength of her entire family because she doesn't see it the keen-improper lighting can do.

Through the centuries our eyes have accommodated themselves to daylight as normal light, and to dimmer as normal hours. But in modern cities our homes often have not even one hundredth as much illumination as daylight affords, and we add to this strain, long hours of close vision in reading.

Is this true in your home? Are your children demanding by their light? Does your husband need home use living room as inadequately or improperly lighted? Be

[illegible] from eyestrain and fatigue when he tries to read? Are your guests worn out after an evening of bridge?

If you want to know how to [illegible] the lighting in your home, send for the free booklet, "Better Light for Better Sight." It tells a new story of seeing. It tells how to measure light accurately, the right that really are—that protect precious eyesight. It tells exactly how much light is necessary for comfortable, healthful sight, [illegible] for that increasing, helpful booklet. Learn from it how to make your family light comfortable. All you have to do is fill in the coupon below and mail it today.

Pacific Coast Electrical Bureau, Dept. S-1, 447 Sutter Street, San Francisco, California

Please send me the free booklet "Better Light for Better Sight" which tells me, in a new story of seeing and photographs, how I can make my family light comfortable.

Name ____

Street ____

City ____ State ____

Pacific Coast Electrical Bureau

447 SUTTER STREET, SAN FRANCISCO ■ 206 WEST 6TH STREET, LOS ANGELES

"Watch the NEEDLE JUMP when I turn on the Light"!

A New Free Service to Protect Your Eyesight

It's like a fascinating new toy . . . this amazing electric eye that measures light. It shows you instantly whether your home is adequately lighted for reading, sewing or other tasks. Perhaps, you have enough light now. But not one home in ten has enough to prevent eye-strain. Surveys have revealed that near-sightedness increases with every grade of school, until 40% of our young people wear glasses . . . or should . . . at the end of college days. Research proves that proper lighting helps keep vision normal. It is vitally important to use good lamp bulbs of correct wattage and to have the right fixtures and portable lamps.

To give you the benefit of this new knowledge about light and eyes, you are offered a new free service. See your lamp or fixture dealer and an expert Home Lighting Specialist will come out and measure your lights with a sight meter.

TEACHERS AMAZED BY LIGHTING TEST

Almost 30 to 50 times the light found in average home

Ask Your

Pay'n Takit Groceryman

for a **FREE** home lighting survey

OR SEE YOUR LAMP DEALER AT

DEPARTMENT STORES, FURNITURE STORES, ELECTRICAL APPLIANCE STORES, OR OTHER MAZDA LAMP DEALERS.

CENTRAL ARIZONA LIGHT AND POWER CO.

TRICKY ELECTRIC LAMP SALESMEN

THE PEDDLER WHO GOES AROUND OFFERING A NEW AND "VERY SUPERIOR ELECTRIC LAMP, IS AS FULL OF TRICKS AS THE "HEATHEN CHINEE."

One of his misrepresentations has to do with your fixtures which he tries to persuade you to condemn. He removes your old one and temporarily places in use the one he is selling. He fills it with lamps, turns on the switch, and lo and behold, you just can't help but be impressed with the increased quantity of light. It surely looks as though you would save a lot of money on your light bill by taking the new gadgets. But alas, by this cockeyed world it is rare that we get something for nothing, and frequently we unwittingly GIVE something for nothing.

The trick in the instance cited is that while the fixture was filled with lamps marked "150 Watts," the labels [illegible] have changed. Actually they are 200 Watt lamps. No wonder the light was brighter. Judging from the filament construction, this particular lamp itself probably will not last very long.

Changes should be made in many old types of fixtures and of glassware, both on the ground of better light and for economy, but it should be done without trickery. Perhaps it is best to be careful about accepting sales talks made by outsiders who float around the country. Go to your local dealer—he has to continue to live with you and try to get along with you. To keep in business he has to give you honest service.

The Power Company does not sell fixtures, but its interests and yours are best served if its customers get what they think they are paying for. BUY LAMPS OF KNOWN MANUFACTURE! It is safe to pass up the itinerant peddler who claims to offer something better than the great laboratories of the world have thus far succeeded in turning out.

If you are offered Magdi in Electric Lamps, just send a sample over to us. We will be glad to test it for light-saving qualities, current consumption, voltage rating, etc. Several of your electric dealers also have the necessary instruments with which to make these tests. It will cost you nothing in either case.

SIERRA PACIFIC POWER COMPANY

NORTHWESTERN COMMERCIAL ELECTRICAL NEWS STEAM

News that you can use

Let us know more need, That we may reap a bigger harvest.

VOLUME 1 — Published by Northwestern Electric Company, Portland, Oregon, October 16, 1934 — NUMBER 1

BETTER LIGHT BACKBONE OF BIG SALES CAMPAIGN

MANY CONCERNS AID BETTER SIGHT DRIVE

Eye Specialists, Jobbers, Manufacturers, Editors Support National Movement

The General Electric Company's Lighting Institute held recently at the Public Service Building auditorium, which so many found instructive and interesting, might well be called the "opening gun" in our fall and winter campaign, in that great humanitarian cause "better light-better sight". No more worthy cause in the interest of its customers has probably ever been sponsored by the utilities in their history. The response does not require [illegible] simply a [illegible] to the [illegible]

SALES PROGRAM BRINGS RESULTS

Big Job Yet To Be Done Although Estimated Quota Topped

Although the quota for sales of electricity for the first eight months of this year has been reached and passed by a substantial margin, there will be no slackening of the sales drive because the quota for the year remains to be made.

Work by every employe of the company is needed and necessary to maintain the splendid pace [illegible]

ALL RESOURCES BACK OF COMING PROGRAM

Radio, Newspapers, Sales Crews, Speakers Will Present Better Sight Theme

Cheer the feeble, all hearts out!

Newspaperdom is [illegible] even its great ads around [illegible] pages during next fall and winter with "better sight-better sight" at the theme.

Every [illegible] [illegible] and promotion, will be [illegible] [illegible]

WHY HANDICAP YOUR CHILD?

Electric ranges sold during 1934 totaled 374. The quota for 1935 is 359.

We sell practically no electric water heaters on this system, nor do we feature them, as the territory is almost completely covered with natural gas.

Electric Refrigerators sold during 1934 totaled 1,569, and our quota for 1935 is 1,503.

These figures for ranges and refrigerators do not include dealers' sales, as we have no data available to indicate what the dealers have sold.

Kilowatt-hour consumption per residential consumer for 1934 was 705 kilowatt hours on our system.

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A Job to Maintain High Saturation

By L. W. BRAINARD
Sales Manager, Idaho Power Co., Boise

WHILE the sales results for 1934, as reflected by the tabulation below, show pleasing increases over the previous year and the resulting load building was sufficient to bring us back to an upward trend, it requires an increased volume of sales each year to maintain present saturations and our comparatively high average kilowatt hour consumption per customer.

	1934 Net Sales		1935 Quota	
	Company	Dealers	Company	Dealers
Ranges	811	475	885	520
Refrigerators ...	553	1,819	580	2,650
Water Heaters ..	583	0	420	0

The kilowatt-hour consumption per domestic consumer for 1934 for the Idaho Power Co. was 1,220.

As a result of intensive sales effort on the part of both the company and associated dealers, it was possible to wind up the year 1934 with a domestic cooking saturation of 43.53 per cent which is down from a peak of 47.1 per cent in 1932. With approximately 16,000 cooking customers, and figuring a replacement market of five percent, it would normally require the sale of 800 ranges to maintain our cooking saturation. No doubt during the past few years many customers have continued the use of old equipment. For this reason a large volume of replacements are now overdue.

Indications in the territory are that the sale of refrigerators, although attaining a most pleasing volume during 1934, will be materially increased during 1935 to attain a larger volume than in any previous year.

We anticipate that range use will be supported by a material increase in dealer sales of electric ranges. Increased activity on the part of dealers in the electric range market, is the greatest thing needed to popularize electric cookery. It will put the electric range on a volume basis comparable with electric refrigeration and other items of electrical merchandise. Manufacturers and jobbers can and should exert increased effort to increase dealer sales of electric ranges to a point where every retail outlet displaying and selling cook stoves of any type will give electric ranges at least an equal favorable showing.

Today the most profitable apparent market lies in the lighting field, both domestic and commercial. Every effort will be made to carry on local cooperative educational and sales activity in line with the national "Better Light-Better Sight" movement to develop this market.

The promotion and development of the lighting market will, without question, result not only in increased use of electric service, but a pleasing volume of equipment sales. As a result of these, profit will come to all types of merchants and dealers handling lamps, lighting equipment, wiring supplies and installation contracts.

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Lighting and sight were never so dramatically brought to the attention of the public as last year. "Fog Light" ads which Northwestern Electric used to make everyone in Oregon conscious of inadequate light; unique tie-up between the Central Arizona and the Pay'n Takit groceries; first of the Pacific Coast Electrical Bureau's dramatic new series on lighting, with the "cruelest woman" appeal; the sales department newspaper of Northwestern; one of a series of dramatic and human ads run by the San Diego utility for the Bureau of Radio and Electrical Appliances; straight from the shoulder ad of Sierra Pacific which tells the public to beware the shyster lamp salesman; B. C. Electric Railway Co.'s appealing series of ads on lighting

All Quotas Exceeded for 1934 Activities

By J. C. PLANKINTON
Manager Sales Bureau, Northwestern Electric Co., Portland

AT THE beginning of 1934 we set a goal of $320,000 estimated annual revenue increase, to be added through our sales efforts. This quota was reached within the first eight months of the year, and our total for the year amounted to approximately $400,000. We were fortunate in securing larger loads for the construction work at Bonneville dam than was anticipated, and this one factor was mainly responsible for our reaching the year's quota before September.

Our commercial lighting sales were outstanding. The addition of new customers was considerably beyond our expectations, but the largest increases over quota came from additions to present customer's loads. Our excess above quota for 1934, in this division, is approximately $30,000.

Sales of major appliances, with the exception of sales to employees, were made through dealers. Range and water heater sales were fairly close to quotas, with a slight excess in range sales. Refrigerators broke over the top of the 12 months quota by the end of August, due principally to the remarkable success of the April campaign. This was a cooperative campaign, in which both utilities and dealers participated.

In the domestic field, our home lighting work was delayed due to difficulty in obtaining the desired personnel; and the training period for each girl took quite some time.

The number of ranges sold 1934, all of them dealer sales, was 537. The quota for 1935 is 550. Water heaters sold 1934 by dealers totalled 39; by the company, 48. The quota for 1935, for dealers is 50, and for the company 150. The number of refrigerators sold in 1934 by dealers was 2,061; and by the company, 76. Quotas for 1935, for dealers, 2,388, and for the company, 80.

Kilowatt-hour consumption per domestic customer on our system was 1,200.

Our 1935 plans are little changed from our 1934 plan. We are increasing personnel in the rural district as we believe our farm sales can be increased materially. Our gross figures have been set somewhat higher than for the past year. Our goal is $337,320. To reach this figure is going to require more effort than was expended in 1934, since for this year there are included no large industrial loads such as the construction of Bonneville.

We will continue with the same personnel in the Portland territory, but with a full 12 months for the entire sales staff. Last year most of our sales organization was added during the period from March to August.

We expect to increase materially our home lighting load during 1935, along with farm lighting and appliance load increases.

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Electric Refrigeration & Cookery Council of Oregon

UNDERGOING reorganization at the present time to include all domestic appliances in its programs, the Electric Refrigeration and Cookery Council of Oregon last year featured a Spring "Kick-Off" advertising program on refrigeration and when the table cookery

campaign came into being went into action on this drive. Two sales meetings were held by it for dealers and their salesmen. No shows or exhibits, however, were conducted.

Officers of the organization are A. L. Shellworth, Sunset Electric Co., chairman; Orr E. Crites, Portland General Electric Co., vice-chairman; Berkeley Snow, Northwest Electric Light and Power Assn., secretary-treasurer. The office of the Council is at the Spalding building. Membership in the Council includes eleven distributor members and six utilities.

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Minimum Users Will Be Object of Drive

By GUY E. DAVIS

Merchandise Manager, Pacific Power & Light Co.

A PROGRAM which should mean more wiring for electrical contractors, and better sales opportunities for all those selling electrical appliances in the territory of the Pacific Power & Light Co. was inaugurated, beginning the first of January, by the company. The program is a drive directed toward the minimum bill users. It will have four main phases.

First will be an education of the minimum bill customer to require more convenient outlets for his home where he can plug in electrical appliances. Members of the sales staff have been asked to see that at least three minimum bill customers be contacted a day to sell the idea of more outlets.

Second is an all-year-around sales drive on the low-priced electric refrigerators designed to fill the needs of the minimum bill customer.

Third is an aggressive campaign for sales of study lamps and better lighting equipment along the "Better Light-Better Sight" theme. Nine home lighting girls will make personal calls in the districts in this activity.

Fourth will be increased activity for sales of electric ranges and water heaters by the company.

In order to make a special effort to replace worn-out ranges with electric ranges a special offer will be made customers. A quota of 750 I.E.S. study and reading lamps, 390 indirect portable lamps, 310 pin-it-up lamps and 625 renu-a-lites has been set for the "Better Light-Better Sight" program. A quota of 180 waffle irons has been set for the system for that contest. It is pointed out that the stimulated activity along these lines can be capitalized upon at the same time by dealers who handle these appliances and lighting equipment.

Total range sales for 1934 equalled 486, and a quota of 540 has been set for 1935. Water heater sales totalled 376, and a quota of 540 has been set for 1935. Total refrigerator sales in 1934 were 635. The quota for 1935 is 586. The average consumption per domestic consumer in 1934 for the entire system was 1,236 kw.-hr.

Merchandise volume for 1934 for the company was $334,338.60 and for dealers was estimated to have been $993,006.60.

The company expects to spend considerable time on air conditioning, both residential and commercial, in a purely promotional effort during 1935.

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Dealers and Company Equalled 1930 Sales

By A. C. McMICKEN

General Sales Manager, Portland General Electric Co.

OUR company sponsored, and we believe carried through to fairly successful conclusion, several cooperative load-building activities during the year 1934. The first major cooperative activity was in behalf of refrigerator dealers between April 5 and April 14 when six full page advertisements, three 120-inch advertisements, and ten 48-inch advertisements were run in local papers, the copy tending to create a desire for immediate ownership of electric refrigerators. In addition, dash signs were placed on street cars, dealers were furnished with window displays, and truck banners were used on our own trucks and the trucks of cooperative dealers. We were assisted in the successful conduct of this activity by all distributors of electric refrigerators in the territory.

Our second activity consisted of two short table appliance cooperative campaigns—one in April and one in May—

From the middle of June until the first of August we conducted an electric ironer activity, paying for all newspaper advertising, and in cooperation with ironing machine distributors giving away each week an ironing machine as a prize for a slogan contest. There were five of such weekly prizes. In addition to newspaper advertising, special window trims were prepared and given to all cooperative dealers and we had again the full cooperation of distributors who encouraged window and floor demonstrations. More than one hundred dealers participated. This activity resulted in the sale of more ironing machines than in any previous six-month period in spite of the fact that it was conducted during the height of the water-front strike.

During August and September we sponsored and conducted in cooperation with distributors and dealers a running water activity, furnishing all dealers selling electric water systems with the names and addresses of customers on our system not having running water but using our service.

On Sept. 26 we opened a five-week electric range campaign, with a dinner attended by one hundred eighty dealers and dealers' salesmen. We also conducted a school under the direction of our merchandise manager, O. E. Crites, for dealers and dealers' salesmen. It had an average attendance of more than seventy people for the three nights it ran. We expended in excess of $6,000 in advertising and with the cooperation of distributors gave away five ranges as weekly prizes for the best jingle submitted. These jingles had to be turned in at dealers' stores in order to qualify in the contest. This brought an average of more than twelve hundred people a week into dealers' stores.

Our own direct merchandise sales in dollar volume were almost exactly 100 per cent better in 1934 than for the year 1933.

We present below a comparative table for the years 1933 and 1934.

In the early part of 1934 we got the best possible reports and dealers' sales in our territory from several distributors of electric refrigerators which indicate for the year 1933 we had sold approximately 9 per cent of the total sales. If a 9 or 10 per cent factor for our sales were held good in 1934, it would indicate that all dealer sales amounted to more than 5,000 refrigerator units. We know that refrigerator sales in our territory were very much better in 1934 than in 1933 and believe it is safe to assume that approximately 4,500 units were sold by dealers.

The number of kilowatt hours sold per domestic customer for 1934 was 991.9 for the entire property. If only the City of Portland and immediate territory is considered, the average for the Portland division is 1,014 kw.-hr. kilowatt hour sales in 1934 compared with 1933 show a slight decrease for the property as a whole: 991.9 in 1934; 994.1 in 1933. For Portland and immediate vicinity the 1934 figure is only .4 of a kilowatt hour less in 1933 than in 1934.

Our plans for 1935 call for increased activity in the sale of water heaters and ranges, with less effort put upon refrig-

	Ranges		Refrigerators		Water Heaters	
	1933	1934	1933	1934	1933	1934
Dealer	432	468	...	...	...	...
Company sales	408	818	308	552	241	708
Total	840	1286	308	552	241	708

erator sales. We believe that our own organization and cooperating dealers will add approximately two thousand ranges during the year 1934 and twelve hundred water heaters. We have already scheduled another cooperative running water activity to help dealers to sell electric pumping systems throughout our territory, and will again "kick off" the electric refrigerator activity with suitable advertising in behalf of dealers about the first of April. We now plan to have four intensive range and water heater campaigns during the year, and to feature throughout the year the all-electric kitchen and kitchen modernization as a part of the Federal Housing Act program and in connection with our own kitchen-planning bureau activities.

We plan and expect this year to do more advertising in behalf of lamp stocket appliances sold through dealers than at any time since 1930.

It may be interesting to note that if we reduce to the basis of range units all appliances sold by ourselves and cooperating dealers, our 1934 sales equal our 1930 sales. In other words, by reducing all appliances to the basis of annual revenues of $36, we and cooperating dealers sold sufficient appliances during 1934 to equal similar combined sales of the year 1930.

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Electric Water Systems Council of Portland

FORMED in the Spring of 1934 to conduct an electric water systems campaign in the rural areas surrounding Portland, the Electric Water Systems Council of Portland conducted a very successful campaign last year. The Council is composed of 10 distributor members, who handle automatic electric systems and in many cases other farm equipment and implements, and the two utilities in Portland.

Officers of the Council are: Wade Newbegin, of R. M. Wade Co., chairman; assisted by a committee consisting of M. Donald Spencer, manufacturers' agent, and J. B. Mitchell, Lewis & Staver Co.

The campaign sponsored by the Council ran from Aug. 15 to Oct. 15, 1934, and consisted of general advertising, newspaper and direct mail, by the utilities in their rural areas. A window display contest for dealers and a slogan contest for the public was used to obtain prospects.

At the close of the campaign the Council took steps to perpetuate its organization but to date has not formally organized except to continue Mr. Newbegin as chairman of the Council. It also decided that the 1934 campaign was successful enough to warrant a somewhat similar activity in 1935 and plans are being made now for this activity. This year it will probably begin in April.

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Seattle's City Light Sets Substantial Quotas

By J. D. ROSS
Superintendent of Lighting Dept., Seattle

WE HAVE just compiled our December figures and have the totals now for 1934.

The number of ranges sold on our system in 1934 was 1,154. Our 1935 quota is set at 1,500 ranges.

The number of water heaters sold in 1934 was 279. Our quota for 1935 is 500.

Refrigerators sold by our department in 1934 totalled 198. Our quota for 1935 is 400.

The number of washing machines sold by us in 1934 was 293. Our quota for 1935 is 350.

The number of ironers sold in 1934 was 53. Our quota for 1935 is 100.

Average domestic kilowatt-hour consumption per residential consumer for our system was 1,050 kw.-hr. This is for residence and domestic power customers together, as our lighting and domestic power rate is the same.

●

Replacement Program Was Successful Sales Feature

By TOM D. FULFORD
General Sales Manager, Puget Sound Power & Light Co., Seattle

A BRIEF resume of our commercial activities for the past 12 months will describe the type of commercial development work which we propose to carry forward again this year.

The "Kid Quota" Campaign—April, May and June—featuring off-peak water heaters, with a quota of 300 units, showed a total sale of 681 units, which was 227 per cent of quota. In addition, range and refrigerator sales amounted to 343 and 320 respectively.

Replacement Campaign—through the month of August a "Replacement" campaign, featuring hi-speed elements and repairs to equipment in general, was conducted with the result that 765 items, including ranges and water heaters, were sold.

Major Three Units—from Sept. 4 to Oct. 15, a campaign featuring the three major units, namely, waterheaters, ranges and refrigerators, was conducted. The results of this campaign showed a total sale of 111 off-peak water heaters, 293 ranges and 58 refrigerators.

Lighting—in eleven weeks our "Better Light for Better Sight" campaign brought about substantial results in obtaining 228 per cent of the bogey.

Agricultural Power Development—brought encouraging results. There were 1,154 strictly farm service appliances such as dairy water heaters, sterilizers, chick brooders, incubators, farm motors, etc., to our lines. Of special interest in this connection is that more farm motors were added than in any previous year. Domestic pump increase was substantial also.

Farm Electrification Department has been broadcasting twice a week in the interest of improving the efficiency and profitable income of the farmer, at the same time increasing the trade volume for dealers handling this equipment.

The Holiday Sales Program, developed around the theme, "Gifts that Serve Are Electrical" was received enthusiastically and the results were gratifying.

Below is a tabulation showing our sales results and quotas, including dealer sales for 1934.

1934 Sales	Water Heaters	Ranges	Refrig.	Total Units
Company	783	1,192	540	2,515
Dealers	301	478	3,642	4,432
1935 Quotas				
Company 5,200		5,500	700	11,400
Dealers—(not yet completed)				

The kilowatt-hour consumption per domestic customer for 1934 was 993 kw.-hr.

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Merchandise Supervisor Helps Dealers Make Sales

By LEWIS A. LEWIS
Assistant General Manager, in Charge of Sales, The Washington Water Power Co., Spokane

I AM sure you know by this time how I hate to write, but I will give what information we have at the present time. Although our reports will not be completed for a few weeks yet the information herewith is fairly reliable.

The 1934 commercial program emphasized commercial lighting and air conditioning. In air conditioning our effort was spent in educational work, principally through talks before Parent-Teacher Associations, commercial and civic clubs. We worked very closely with manufacturers' agents and dealers. resulting in the second annual Air Conditioning Exhibit which attracted wide attention and was extremely satisfactory to the dealers and manufacturers.

Because of our climatic conditions we have not made any full air conditioning installations, but have had a large number of air changing equipment installations. These include ventilating fans and air washers. Fruit warehouses are beginning to realize the value of this service in the preservation of fruit.

Last year the contract for the Coulee Dam construction was consummated, providing a rate which yields about 1c per kw.-hr. for construction, power and ¼c per kw.-hr. at our 110,000-volt substation for electric heating. Practically

all of the living quarters at Coulee Dam are electrically heated.

Commercial lighting has been a major part of our program and the lighting service has been increased from two to twelve men and five women in the home lighting field.

We entered the "Better Light-Better Sight" movement very actively with very satisfactory results, both in the sale of commercial load and the sale of student lamps and indirect lighting fixtures.

The inauguration of a Merchandise Supervisor, devoting his entire time in building up dealer sales, has been very satisfactory and we can notice a very much more active interest in the sale of merchandise among dealers since the inauguration of this service.

The following summary of sales by dealers in Spokane area only is extremely interesting and I am submitting it for what it is worth:

Article	1934 Sales	1935 Quota
Washers	3,047	3,600
Ironers	207	250
Radios	5,635	6,500
Vacuum cleaners	1,296	1,600
Irons	3,645	4,300
Toasters	3,435	4,100
Percolators	2,711	3,000
Waffle irons	1,117	1,350
Grills	2,465	2,500
Mixers	865	1,000
Heating pads	364	400
Sun lamps	49	60
Air heaters	332	400
Fans	507	600
Kitchen units	1,175	1,300
Lamps, floor, table	6,650	8,000
Immersion heaters	300	100
Ovenetts	112	140
Health motors	25	...
Clocks	2,984	3,500
Sewing machines	387	460
Refrigerators	1,875	2,400
Ranges	186	250
Water Heaters	52	100
Total	39,421	45,910

1. Number of ranges sold by ourselves and dealers in 1934 561
   Quota for 1935 750
2. Number of water heater sales, company and dealers, 1934 896
   Quota for 1935 1,575
3. Number of refrigerator sales in 1934:
   Company ..... 462 Quota 1935 350
   Dealers ..... 3,027 Quota 1935 3,500
   Totals ..... 3,489 Quota 1935 3,850
4. Average kilowatt-hour consumption, 12 months' ending Nov. 30, 1934 1,610
5. Merchandise sales for the year 1934 amounted to $356,658

1935 will find us more active in the sale of heavy equipment such as ranges and water heaters. A movement has started to rehabilitate old ranges and to replace obsolete ranges with modern equipment.

Off-Peak Water Heating was started in May of last year resulting in approximately 700 installations, and by expanding it is estimated fully 1,500 off-peak water heaters will be installed in 1935.

Work among dealers will be continued in an effort to secure their cooperation in the sale of ranges and the better type of lighting equipment together with the usual sale of socket devices.

An air conditioning exhibit will be conducted again this year, and lighting activities will not lag.

Industrial Revival Seen In Power Increases

By R. E. FISHER
Vice-President in Charge of Public Relations and Sales, Pacific Gas and Electric Co.

PACIFIC Gas and Electric Co. sales results for the year 1934 from an overall viewpoint have been good. Our electric quota for the year was set at $3,529,632 in annual revenue and we were successful in connecting to our lines $3,968,662, or an accomplishment of 112 per cent. Our accomplishment in domestic sales was $1,117,987 in annual revenue against a quota of $1,223,537 or 91.4 per cent. In the commercial and industrial classifications, our annual revenue accomplishment amounted to $2,850,675 in annual revenue against a quota of $2,306,095 or 123.6 per cent.

I think these figures indicate that there has been rather a substantial pull-

Central Pacific...

up in the manufacturing and merchandising fields which is further borne out by actual kilowatt-hour sales. The general power classification for P. G. & E. Co. has increased 12.5 per cent above 1933 in kilowatt-hour sales. Agricultural kilowatt-hour sales have increased 7 per cent above 1933. Mining power sales have increased 26 per cent, and commercial lighting sales have increased 7 per cent.

There is a noticeable lag in domestic kilowatt-hour sales, with only a 2 per cent increase, in comparison with the commercial and industrial classifications, even with an increase of some 15,286 domestic electric consumers. The result is that kilowatt-hour sales per domestic consumer have decreased from 733 in 1933 to 726 in 1934.

We continued an aggressive domestic lighting activity throughout the year 1934 and were successful in selling some 19,456 high wattage domestic lighting units. Our plans in this activity are designed to tie in with the national "Better Light-Better Sight" campaign which has been taken up by most of the electric utilities throughout the country. A significant thing about the sale of domestic lighting equipment during 1934 was that as a whole consumers were interested in and purchased more of the higher quality merchandise, indicating that this type of purchaser has a little more money to spend and is in a better position to buy. We have therefore set a quota of 25,000 units for 1935.

In our commercial and industrial lighting activity we set a quota of $278,000 in annual revenue for 1934 and were successful in connecting to our lines $276,798, or an accomplishment of 100 per cent. On account of the stimulus that is being brought about by the "one-half off" discount on excess electricity and because of the "Better Light-Better Sight" idea being expanded into this field, we have increased this quota for 1935 to $298,000 in annual revenue.

New and reconnected agricultural business taken on during 1934 greatly exceeded the quota, the accomplishment being $550,500 against a quota of $382,250 or 144 per cent.

Likewise in commercial and industrial power we were successful in connecting some $1,864,500 in annual revenue against a quota of $1,405,000 or 133 per cent. About 13 per cent, or $250,000 in annual revenue, of the industrial power connected in 1934 was mining load.

The important thing about the sales outlook for northern California is that a substantial foundation for load building has been laid during the years 1933 and 1934. The year 1935 should be a very successful sales year; the economic picture is very definitely better. All indications are pointing upward and it remains for us in the electrical field to raise our sights for a bigger year in 1935. Do not interpret from these statements that sales are going to be easier. On the contrary, people are still living with the habits of economy developed during the past five years. These habits are deep seated and the national picture has not cleared up sufficiently to satisfy the average person that we are definitely on the road to better times. For that reason they are still cautious and no sales are being made or will be made without the necessity of a very complete selling job in each individual case. It is naturally the job of the sales and advertising departments of the electrical indus-

Kilowatt-Hour Sales Year 1934 Compared with 1933

	1934	1933	Increase	Pct.
Commercial lighting	$224,303,927	$209,749,663	$14,554,264	6.94
Domestic lighting†	278,146,655	267,470,599	10,676,056	3.99
Commercial heating and cooking	22,341,150	23,750,336	1,409,186*	5.93*
Domestic heating and cooking†	98,653,728	102,226,261	3,572,533*	3.49*
Mining power	163,450,716	129,972,807	33,477,909	25.76
Agricultural power	280,531,170	261,940,560	18,590,610	7.10
General power	1,035,935,459	920,796,860	115,138,599	12.50

* Decrease.
† Domestic lighting and domestic heating and cooking combined show 2% increase.

try to break down this deep seated selling resistance.

Our sales and advertising plans for 1935 call for a budget of approximately $1,803,000 for the promotion of electric and gas load building and our electric and gas quota has been set at $5,469,780 in annual revenue. Approximately 60 per cent of this budget will be expended for developing electric load. The electric annual revenue quota is $3,565,000.

The company and dealer sales and quotas on electric appliances for 1934-1935 are as follows:

Electric Appliances	Number Sold 1934	1935 Quota	Quota for 1935 Est. Retail Mdse. Value
Ranges	2,479	4,000	$ 460,000
Water heaters	2,354	3,000	225,000
Maj. air heaters	763	2,000	60,000
Aux. air heaters	5,459	9,850	59,100
*Domestic refr.	24,275	27,000	4,320,000
*Apt. kitchen refr	1,375	1,450	87,000
*Dish washers	92	100	20,000
*Washing mach.	26,377	26,150	1,830,500
*Post type ironers	2,244	2,400	52,800
*Standard ironers	3,945	4,300	301,000
*Radios	68,383	68,900	3,445,000
*Vacuum cleaners	20,316	21,400	749,000
*Sewing machines	12,849	13,000	650,000
*Mixers	...	20,000	300,000
Total			$12,559,400
Volume of installation business			274,250
Total electric business			$12,833,650

* Sold exclusively by dealers in PG&E Co. territory.

Gentlemen, there is the market for 1934—$12,559,000 in retail sales volume and installation work which we estimate will run $275,000, but which probably will run well over $500,000.

I think the electrical industry has a real job laid out before it in the Pacific Gas and Electric Company territory and it will take real selling and advertising programs to put it over. We expect to continue activity in cooperation with the Electric Appliance Society of Northern California, which has done a splendid job during 1934 and which, I understand, expects to more than duplicate the past year's accomplishment. I think the industry as a whole can well thank this group for their very successful leadership in the general promotion of electrical merchandising this past year.

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Electric Appliance Society of Northern California

SINCE detailed accounts of the various campaigns of the Society have been carried in the columns of Electrical West during the past year, and since there are only now in preparation some of the major plans for 1935, a brief resume of the results of the campaigns conducted will suffice. Under negotiation at the present time is another big vacuum cleaner campaign for the month of April. E. S. Rising, of Thompson Holmes, has been elected chairman of this campaign committee and preliminary meetings have been held to outline the campaign features.

The accompanying tabulation shows the results of the first three campaigns of last year. Definite figures as to the Christmas campaign were not gathered because of the rush of the times and of the widespread area over which it was conducted. This table, however does show remarkable increases in sales over sales for the same months last year for the three campaigns of the Society. Increases of 117, 50 and 61 per cent, for

each campaign, respectively, were shown. One of the most successful features of the society's work is that provided by the two educational directors who spend all of their time out among the dealers, training their sales staffs or the dealers themselves to use and demonstrate appliances, help with window trim and store displays, arrange demonstrations and schools, and generally make the service of the Society a really personal and human service in addition to the advertising and promotion in the press and by other forms of advertising it does.

To answer questions as to the Society and its operation a little booklet has been prepared for those seeking the information. Also prepared at Christmas was a handy pocket sales manual, giving briefly and clearly the sales points of each appliance.

Pacific Gas and Electric Co. has lent its aid to the Society by newspaper advertising, by the aid of its dealer sales promotion men, by staging cooperative floor and window displays in each of its 56 or more offices, by bill stickers attached to each bill, by articles in its consumer house organ, *P. G. and E. Progress*, by truck and car cards, and by direct mail circulars. The Society has usually supplied a campaign poster, publicity clip sheets to the newspapers in which advertising was to be run and from which the papers could work up special pages of dealer tie-in advertising, window display contests for some of the campaigns, and a stimulation of the distributors and manufacturers of the appliances featured to give better service and assistance to their dealers.

●

Home Lighting Service Added for This Year

By H. W. EDMUND

Sales Manager, Coast Counties Gas & Electric Co., Santa Cruz, Calif.

A HOME lighting service has just been added to the new business Department of the Coast Counties Gas and Electric Co. Miss Evelyn Kelly has been selected as demonstrator, and the work is being handled through the general office at Santa Cruz, under the direction of Milo Cain, electric sales supervisor. Although it has been underway only since the first of the year, already the results are encouraging.

We feel there is a great field for this type of work. Since lighting is the first electric service many consumers receive, it is important that they be familiar with the benefits to be derived from its correct application, and to do this it is necessary that they appreciate the direct relationship between 'better light and better sight.'

Miss Kelly has had considerable training in interior decoration and lighting work, and we consider it particularly fortunate that we were able to begin our work with her services.

The present national campaign in this regard makes this a most opportune time to inaugurate such a service, and we anticipate the building of continued better customer good will and added electric load as this work progresses.

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Alameda Entered Direct Selling This Year

By R. N. HARVEY

Secretary, Municipal Light and Power Dept., Alameda, Calif.

BEGINNING in 1931, the department in endeavoring to stimulate the sales of domestic equipment, offered free wiring for electric ranges, not to exceed $40.00; $20.00 for approved storage type water heaters. On air heating installations, the customer was obliged to deposit with the department an amount equal to the cost of the installation. This amount was returned to him as a monthly credit on his elec-

Electric Appliance Society of Northern California

Campaign	Month	No. Sold During Campaign	*No. Sold Same Month 1933	% Increase
Vacuum cleaners	March	2,092	962	117
Refrigerators	May	3,350	2,233	50
Ironing machine	September	808	460	78
Washing machine		2,921	1,839	59
Total washers and ironers		3,729	2,299	61

*There were no E.A.S. campaigns specifically on these appliances in 1933.

tric bill for a period of 24 months. After a period of 3 years, during which the department expended further sums in considerable amounts for educational advertising, it was found that the load gained was not sufficient to warrant the expenditure. In fact, during the year 1933, the local dealers collectively sold 11 ranges and 2 water heaters.

Early in 1934, we found it necessary to enter the field of direct selling. We were in hopes of retaining the good will and cooperation of the local dealers and in this we have not been entirely successful, although, all wiring jobs have been turned over to them, and on several occasions we have been instrumental in persuading a customer to buy from the local dealer, rather than from the department.

Immediately on beginning of merchandising work, we reduced the wiring allowance on ranges to $25.00, but offered to wire in water heaters without limit, at cost. This allowance was made where the equipment was permanently installed, and the customer agreed to use it for a period of two years. To meet the problem of the rentor who could not sign a two year contract for service, and for the customer who objected to paying an amount above our allowance, we developed a portable range service which has been very satisfactory and which has averaged about $31.00 per service, and can be moved readily at an approximate cost of $5.00. This equipment has been so satisfactory, that in recent months comparatively few permanent installations have been made.

The department began merchandising major domestic equipment about mid April, 1934, and up to Dec. 31, 1934, we sold 96 ranges on our lines. Dealer sales are estimated at 10.

During the same period, 56 Wesix storage type water heaters were installed. Incidentally, more than 50 per cent of the units sold were all-copper.

The department began selling refrigerators for the dealers about July 1, 1934, and during the succeeding 10 months, sold 10 boxes. This was a cooperative plan wherein the dealers displayed refrigerators on our floor, we sold them, and in turn purchased from the dealer at list price, less the commission we had paid to our salesman. The plan has not worked too well, because the dealer sometimes met the prospect who had previously been contacted by our salesman, and offering an unreasonable allowance for a turned-in ice box.

During the same period, or particularly during the last 60 days of the year, we sold 68 Wesix centawatt heaters. We did not put as much effort into heater sales as we had intended doing.

The average kilowatt-hour consumption for domestic consumer for 1934 was 758 kw.-hr.

During the year, we concentrated on the merchandising of major domestic equipment, and did very little with lighting and power loads, although we added approximately 2,500 kw. in power loads to our system during the period.

On Dec. 1, 1934, we established a new domestic combination rate for installations having a connected load of 7.5 kw. or more in major equipment. This rate, on which there is no service charge and no minimum is:

First—160 kw.-hr. per meter per month *3.5c*

All over 160 kw.-hr. per meter per month *1.0c*

It has proved to be very satisfactory. We believe that as an inducement rate, it will accomplish its purpose.

Due to the difficult situation in local politics which exists at the moment, our program for 1935 is quite unsettled. We had set a quota for ourselves of 365 major units for the year.

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Dealers Build Load At Less Cost in Reno

By H. A. LEMMON
Commercial Manager, Sierra Pacific Power Co.

UNDER the NRA, stenographers and secretaries go fishing on Saturdays, so I am sending the information requested in the form it came to me.

We have 8.902 home customers, an increase of 601 over 1933. Our range saturation at this moment stands at approximately 33 per cent. We increased our range installations by 16.2 per cent during 1934; in 1933 that increase was 17.3 per cent.

Looking back we remember 1931 as the year of greatest prosperity Reno has ever enjoyed. In fact, we took on some of the atmosphere of the old time mining camp. The company was active in heavy appliance sales, and during that year sold 304 ranges, while the dealers sold 145, or a total of 449. Our sales department contained 12 salesmen.

Nineteen thirty-three was the lowest point in Reno's experience insofar as business was concerned. We lost some 1,100 customers. Just prior to '33, however, the company entirely withdrew from general sales, and since that time has not had a single salesman on its payroll, turning the whole thing over to the electrical dealer and contractor. During that year our range installations increased by 390. In 1934 it reached 431.

Making any comparison between 1931 and 1933, the first period of glorious prosperity and the last one of sounding the depths (banks busted, etc.), it is perfectly obvious that, contrary to the general impression, given a reasonable measure of assistance, a group of dealers can place more ranges on the lines at less cost than can the power company. That, however, is a highly controversial statement and constitutes a story in itself.

The following figures give a good resume of the appliance sales for the past two years and plans for 1935:

Twenty dealers cooperated to make the above records possible, the leading dealer selling 257 electric ranges and 214 electric refrigerators.

Cooking schools were held at Yerington, Carson City and Reno. All were exceptionally well attended and dealers were satisfied that sales resulted. In Yerington especially, we were successful in repelling an invasion of Butane gas, with a series of cooking schools.

A "Better Light-Better Sight" campaign was conducted in October and November. Dealers reported a heavy demand for the larger wattage lamps. Also it brought to general attention the methods and subterfuges used, particularly by outside salesmen of "gyp" lamp distributors to sell lamp and fixtures. The practice of these shysters we were able to help stop.

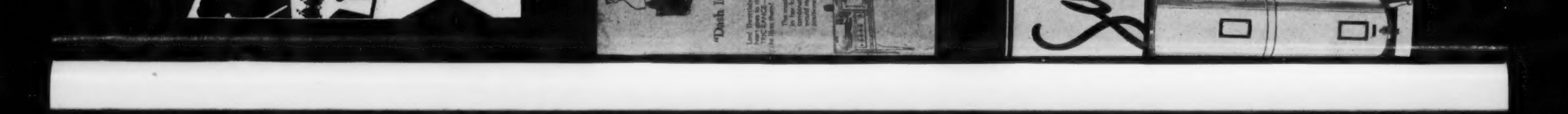
No particular activity was noted on mining, industrial and agricultural power loads, although we might report a greatly increased mining load.

Continuance during 1935 of our dealer cooperative policy is contemplated. It proved so successful during 1934 that it is planned to meet the problems of displacing competitive fuels by the assistance and initiative of these cooperative dealers.

As of Dec. 31, 1934 we had 3,069 ranges connected, bringing the electric range saturation to 33% of the total wired residential homes and farms; our records showing only 66 less electric

●

Representative advertising used by western utilities in 1934. Broadside to announce a successful radio feature; humorous series of range ads; Puget Sound played up safety in its hot water drive; "Electri-News," a consumer pamphlet which has done a fine job in mountain region; one of the spreads which helped dealers in Portland to sell refrigerators; an effective pamphlet used to promote modernization loans; one of Southern California Edison's many clever small ads; Utah Power & Light's ads on water heaters; electrical contractors' and electricians' union in Fresno to tie in with "free electricity"; a real bargain sale in electricity with electric service translated into one cent sale items



For your enjoyment—
THE ELECTRIC
HALF-HOUR
KHQ
9:30 TO 10
EVERY SUNDAY EVENING
Presented by
THE WASHINGTON
WATER POWER CO.

ElectriNEWS
ROCKY MOUNTAIN ELECTRICAL ASSOCIATION
VOL. 2, No. 3
SUMMER, 1934
THE HOME OF TOMORROW
IS HERE TODAY

NOW!
you can have
HOT WATER
ELECTRICALLY
plenty of it—always ready
and it COSTS LESS!
No matter when you want it—
Steam hot water, brought to you Electrically, is always there in abundance. And it comes to you, now at a new low cost.
The cost for steam Electric Water Heating is now so low that this modern convenience is easily within the reach of your home, to supply the needs of the whole family at any time of the day or night.
AN INSTALLATION IN YOUR HOME WILL CONVINCE YOU OF THE EFFICIENCY AND LOW COST OF THIS NEW SERVICE. CALL US FOR FURTHER PARTICULARS.
UTAH POWER & LIGHT
Efficient Public Service

43,120 PORTLAND HOMES NEED
REFRIGERATION, SAYS POLK SUR
rly 4000 will install refrigerators this year is esti
AVING ALONE DECLARED TO
THAN OFFSET ENTIRE COST
Keep Foods under 50° for Health Protection," say authorities
6,200 Homes Installed Electric Refrigerators During the Past Two Years
Health...Principal Refrigeration Advantage

"Dash It Jenkins . . . There Goes My Other Shirt!"
Refrigerator and Refrigerating Ranges From $114.70
Small Down Payment—Easy Monthly Terms
Liberal allowance for your old coal, gas or obsolete electric range.
Portland Electric Table Stoves $6.95
$1.00 Down—$1.00 a Month
The Montana Power Co.

Take Full Advantage of FREE ELECTRICITY
During April and May you may use all the electricity you desire. It will cost you nothing, in excess of your March billing.
Rewire NOW!
Residential Property Wired for Electrical Comfort is Easier to Rent or Sell

Safe!
We've Eliminated the Hazard in Water Heating
NO FUMES or exposed hot surface with our new Perfected Automatic Electric Water Heater. Children may play around it with absolute safety.
$10 DOWN
24 MONTHS TO PAY
PUGET SOUND POWER & LIGHT COMPANY

SAVE

See special window display
this week at all
Electric Refrigerator Deal
PEPCO Electric ST
of the Portland General Electric

MONEY
FOR ELECTRIC HOME MODERNIZATION
A Special Bulletin ANNOUNCING the ELECTRIC HOME MODERNIZATION SECTION of the BUREAU of POWER and LIGHT
CITY OF LOS ANGELES

Not many more days TO CHRISTMAS
Puts Refrigeration on a Paying Basis

1¢ SALE
ATTENTION, BARGAIN HUNTERS!
RADIO 1¢
LIGHT 1¢
REFRIGERATION 8 for 1¢
CLEANING 1¢
SUNSHINE 1¢
HEAT 1¢
IRONING 1¢
2 WEEKS WASHING 1¢
100 PRIZE CAKES 1¢
The Biggest Bargain Ever
Electricity Never Has Been Cheaper
COFFEE 1¢
TOAST 30 for 1¢
TIME 2 weeks for 1¢
WAFFLES 1¢
EXTRA SPECIAL 1¢
SAN JOAQUIN POWER OFFERS
A WHOLE YEAR OF SAVING

ranges than electric refrigerators.

At the start of the year 1934, we had 4,906 customers with wired homes and farms who were not using electricity for cooking. We now show 431 electric ranges sold or 8.8% of the unsaturated portion of our accounts.

While we only inquired for the number of sales, amusingly enough we later found that dealers' reports of ranges and refrigerators sold were "boosted". Beginning Jan. 1934, all reported sales have shown the name and address of purchaser; and the make, model and serial number of the electric appliance sold. This has proved a more reliable index for both dealers and ourselves.

Electric Ranges:

	1935 Quota	1934 Sales	1933 Sales
Company	10	12	50
Dealers	490	419	340
Total	500	431	390

Note: An increase of 41 ranges or 10.5% increase in 1934 sales over 1933 sales.

Electric Water Heaters:

	1935 Quota	1934 Sales	1933 Sales
Company	15	12	16
Dealers	85	72	54
Total	100	84	70

Note: An increase of 14 water heaters or 20% increase in 1934 sales over 1933 sales.

Electric Refrigerators:

	1935 Quota	1934 Sales	1933 Sales
Company	0	4	22
Dealers	400	361	269
Total	400	365	291

Note: An increase of 74 refrigerators or 25.4% increase in 1934 sales over 1933 sales.

The kilowatt hour consumption per domestic consumer for 1934 was 922.8 kw.-hr. as against 893.2 kw.-hr. in 1933, showing an increase of 26.9 kw.-hr. or 3.3% increase in 1934 over 1933.

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1934 Was Turning Point For San Joaquin Valley

By E. G. STAHL
Sales Manager, San Joaquin Light and Power Corp., Fresno

THE year 1934 marked the turning point in economic conditions in the San Joaquin Valley. Improvement in agricultural and oil business has caused a general feeling of optimism throughout our territory, and our "Free Electricity" campaign and "Fifty per cent discount offer" have given an impetus to electric sales which is reflected in all classifications of service.

With a quota of 48,690 kw., our actual new business sales for the year amounted to 73,115 kw., an average of .7 kw per consumer.

	New business connected 1934 K.W.	Quota 1934 K.W.
LIGHTING		
Domestic	4,327.49	5,415.00
Commercial	3,476.46	5,160.00
Small Appliances	12,004.25	9,425.00
COOKING AND HEATING		
Domestic	16,500.98	17,436.00
Commercial	1,117.64	12,029.00
POWER		
Industrial	7,943.16	7,535.00
Oilfield	9,308.97	6,800.00
Agricultural	18,436.53	17,000.00
Total	73,115.48	70,000.00

One of the outstanding results of the year's work was the reconnection of 9,785 kw. of old load which has been disconnected, due principally to economic conditions. Eighty per cent of this load was agricultural power.

Our Home Lighting Division which was organized in 1934 has done outstanding work and it will be expanded during 1935.

During the year, also, air conditioning and small agricultural appliances will receive greater attention than in the past.

Gladys Byrne, one of the Electric Appliance Society's two educational directors, showing a dealer how he can demonstrate the ironers he sells

It was apparent during the latter part of 1934 that competitive power activities had passed their peak and that with anticipated improvement in agricultural prices during 1935, we will be able not only to retain a greater percentage of installations but at the same time re-electrify a considerable portion of the business that has been lost in the past.

●

Special Inducements Build Dealer Sales, Add Load

By H. H. COURTWRIGHT
Manager, Valley Electrical Supply Co., Fresno

THE story of our merchandising and load building activities for 1934 is wrapped up in the promotional campaigns in support of the three inducement offers presented during the year by San Joaquin Power, namely, the "Free Electricity Offer," the "New Lower Rate Offer," and the "50% Discount Offer." Each of these offers was designed to stimulate our customers to increased use of electricity with the objective in mind of establishing a permanently lower rate.

The success of the campaigns depended to a large extent upon the sale of electrical appliances and equipment through dealer channels. Intensive advertising and merchandising programs were developed and carried out in cooperation with the dealers throughout the territory. Every advertising medium at our command was used to publicize and popularize the campaigns. During the period of each campaign (ten weeks) ads appeared weekly over the power company insignia explaining the offer and the utility of electrical appliances. Straight merchandising ads prepared primarily for the dealer appeared weekly over the dealer-cooperative insignia. The radio billboards, truck banners, direct mail and personal contact, were all used to tell the story.

Our dealer window display service which has been so gratefully received by the dealers was particularly effective in creating customer acceptance of the offers and in building dealer sales. Special window trims were furnished for setting up window displays, together with window banners and store cards.

The "All-Electric Kitchen Coach" covered the entire system, staging a showing in front of dealers' stores. The Coach displayed in addition to the model all-electric kitchen many other time and labor saving devices. More than 35,000 visitors passed through the coach. Prospects obtained through registration cards were passed on to the dealers in each community.

The kitchen coach was transformed into a lighting coach in the latter part of 1934 and toured the territory showing a complete display of the latest lighting equipment, featuring the reflector lamp. This activity was a part of the lighting campaign to promote a better customer and dealer acceptance of the reflector lamp and point out to the dealer the fine merchandising possibilities it offered.

In April, electrical appliance expositions were held in Fresno and Bakersfield. While these exhibits carried displays of all electrical appliances, refrigerators were given the spotlight.

Another activity undertaken in 1934 in connection with our dealer cooperative effort was the compilation of a monthly summary of electrical appliance sales. Through the cooperation of more than one hundred dealers in the territory we have been able to start this service. The report is valuable to the dealer in that he can see how much business is being done in his locality and can judge whether he is obtaining his fair share or not.

It is valuable to the merchandising division of the power company in that the weak spots on sales can be located and more advertising and dealer cooperative helps can be directed to the districts where needed.

The report on range, water heater and refrigerator sales for 1934 together with quota for 1935 follows:

	1934 Actual	1935 Quota
Ranges	1,212	1,500
Water heaters	634	750
Refrigerators	5,238	5,120

Our records show the average annual kilowatt hour consumption per domestic consumer for 1934 to be 972.

Business conditions over the San Joaquin and Midland Counties system, from all available reports, seem to be on the upgrade and every indication points to a continued improvement in 1935.

It is our policy to help all dealers with their merchandising problems. Our two stores, located in Fresno and Bakersfield, are used as sales training headquarters in our dealer cultivation work. Here we train salesmen who are to become our dealers' employees. In these stores merchandising plans are tested to assure that those we pass on to our cooperative dealers are practical.

We will carry on aggressively in 1935 the heavy duty appliance program, which includes cooking schools, special campaigns, electrical expositions, the All-Electric Kitchen Coach and dealer cooperative helps. All sales will pass through dealer outlets. The sale of small or lamp socket appliances will also be promoted vigorously.

A determined effort will be made to stimulate the minimum consumer to increase his use of electricity. A merchandising program built up around low priced quality equipment on reasonable terms will be carried on. Appliances which will be featured include the lift-top refrigerator, the radio, the iron, the reflector type lamp and laundry equipment. With the "50% Discount Offer" as an inducement, the minimum consumer can enjoy the comfort and convenience of these appliances at an extremely low operating cost.

Our window display service will be continued and enlarged in scope. We will also include in our dealer cooperative program newspaper advertising for the dealer, display coach, district office displays, campaigns on table cookery, promotion of electrical appliance exhibits and monthly summary report on the sale of electrical appliances. Much work has been done in fostering the Fresno Gas and Electrical Appliance Society through which prices and trade in allowances on electrical appliances are better maintained.

We will enter upon our sales and merchandising program for the year 1935 with a trained organization. Our experience with the "Free Electricity" and the "Lower Rate Offer" Campaigns will prove invaluable in promoting the "50% Discount Offer."

Plan to Campaign Range and Water Heater

By R. C. BRAGG
Assistant Manager, Vallejo Electric Light and Power Co.

OUR commercial program for 1934 was practically nothing. We had a small range campaign in the early spring of 1934, which was primarily to find out how the people felt in reference to electric ranges, after some two years of practically no activity on this appliance.

The campaign was very satisfactory from our point of view, as some 75 ranges were sold in a period of 30 days.

As yet we have not all the details prepared for 1935 activities, but we intend to campaign the range and water heater quite extensively.

The number of ranges sold on our system in 1934 was 115, and the quota for 1935 is 250. Water heaters sold numbered 15, and the quota for 1935 is 75. There were 350 refrigerators sold in 1934 and the quota for 1935 is 475.

Kilowatt-hour consumption per domestic consumer for 1934 was 789.

Southwest...

Trial-Rental Range Plan Starts Load Building

By ROBERT MEAD
Public Service Dept., City of Burbank, California

DURING March of last year we conducted a survey of all the electric ranges then in use in the city. Contacts with electric range users were established, and all ranges then in use were placed in good operating condition. A cooperative merchandising plan was then inaugurated, providing for the sale of ranges by the dealers and by this Department. The plan also included a trial-rental feature whereby dealers and Department representatives could arrange for trial installations at rental fees varying between $1.50 and $2.00 per month, depending upon how the range was equipped. When a range was purchased by a trial range user, all rental fees paid to date were applied against the purchase price of whatever range the customer selected for his permanent use.

Before the end of the year, we had completed the installation of an electric kitchen; and had secured a home economist for home demonstration purposes, and to assist in sales work. During 1935 we plan to conduct regularly small cooking schools for the benefit of present range users and selected prospects.

We cooperated in the staging of two newspaper cooking schools at one of the theatres—one in May and the other in November.

During 1935 we plan to proceed with the range merchandising plan in its present form. The total saturation at the present time on electric ranges is 1.82%. We do not feel that this is anywhere near great enough to justify discontinuance of the trial-rental plan, which seems to us to be the most satisfactory method of obtaining mass acceptance of the electric range.

As in 1934, we will continue to do a certain amount of advertising in the newspapers, and will send out with the bills each month circulars carrying the story of electric cookery, water heating, space heating, and lighting.

We plan to coordinate our activities with those of the Southern California Edison Co., the Los Angeles Bureau of Power and Light, the City of Glendale, and other utilities in this territory—hoping that they as well as ourselves will enjoy a great load-building year in 1935. The City of Burbank recently acquired, through purchase from the Southern California Edison Co., some 830 new services, raising our total number of domestic customers to 5,170. All electric services within the city limits are now a part of our system.

The total number of electric ranges installed last year was 63. This total was divided as follows: Ranges sold 30; Ranges installed on trial-rental basis 26; Move-ins 7.

We have set no quota for 1935. However, we are optimistic and expect a better year in 1935 than was enjoyed in 1934. The above figures summarize our range activity for the last nine months of 1934 only. We started merchandising activities about April 1.

Of the 30 ranges sold, 19 were sold by the dealers and 11 by this Department. Of the 26 trial installations, 12 were secured by the dealers and 14 by ourselves.

We placed very little selling effort on water heaters, since we have not a definitely established policy with regard to a water heating rate. We installed 4 electric water heaters on a 1-cent flat rate, with no provision for off-peak.

As with ranges, we have established no quota for 1935. We will probably do more promotional work on electric water heating than was done in 1934.

Electric refrigerators sold in 1934 totaled 136. Our work on refrigeration is entirely promotional. All direct selling is done by the dealers.

Kilowatt-hour consumption per domestic consumer for 1934 was 533; an average per consumer per month of 44.4.

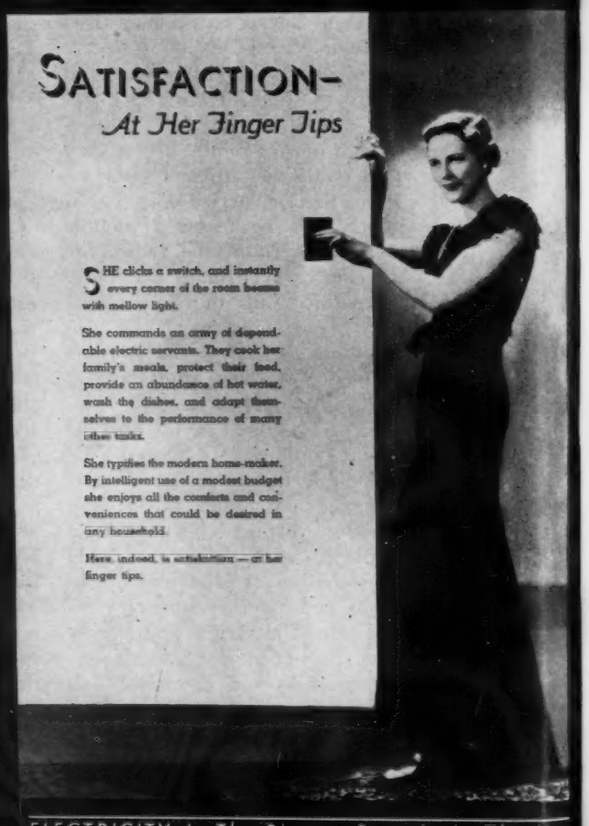
RELIABLE AS A LIGHTHOUSE BEAM
MICRO-SENSITIVE

MODERNIZE
ELECTRICALLY
BETTER HOUSING
PROGRAM
RE WIRE
RE LIGHT
RE EQUIP
USE THE GOVERNMENTS EASY PAYMENT PLAN
BETTER LIGHT
BETTER SIGHT

ELECTRICITY
ON ALL
ADDITIONAL
USES
That the amount of money by which your bill for any one month at same location exceeds your bill for the corresponding month a year back
P·G·&E·

AUTOMATIC

FREE ELECTRICITY
For April and May Service
ASK ABOUT IT
For Monthly use in excess of your March bill
SAN JOAQUIN LIGHT AND POWER CORP.


SATISFACTION–
At Her Finger Tips
SHE clicks a switch, and instantly every corner of the room beams with mellow light.
She commands an army of dependable electric servants. They cook her family's meals, protect their food, provide an abundance of hot water, wash the dishes, and adapt themselves to the performance of many other tasks.
She typifies the modern home-maker. By intelligent use of a modest budget she enjoys all the comforts and conveniences that could be desired in any household.
Here, indeed, is satisfaction — at her finger tips.
ELECTRICITY Is The Biggest Bargain In The Hom
UTAH POWER & LIGHT Co

Figures Show Business Conditions Improving

By A. W. ELLIOTT
Business Agent's Division, Bureau of Power & Light, Los Angeles

KILOWATT-HOUR sales and revenue figures present a much better indication of rising business conditions for 1934 than they did for 1933. The total kilowatt-hour sales show an increase of 4.8 per cent over the previous year. Total power sales show an increase of 6 per cent. Industrial power increased 6.6 per cent. Lighting and appliance sales were up 4.3 per cent.

On the other hand the increase in meters for the calendar year 1934 was small, as indicated from the meter gain of 1,097, which is only a 0.4 per cent increase from the 269,169 meters as of Dec. 31, 1933.

Ranges added during 1934 totalled 884, and we have set a quota of 1,100 for 1935. The department does not directly merchandise, and all sales made by the department's range specialists are in cooperation with, and for the dealers.

Water heaters added during 1934 numbered 132. We have set no quota for 1935, but with a new rate, effective June 1, 1934, of 1 cent per kilowatt-hour for "approved" electric water heaters we expect to increase this business materially. Last year, in a sense, was experimental in water heating. We wanted to see what could be done for a family in a practical way with electric water heating and made a number of experimental installations at homes of employees to study the load and operating conditions.

The Bureau of Power and Light keeps no record of refrigerator sales made within the city of Los Angeles and so figures on this appliance are not available. From all indications, however, it was a banner year for the dealers and distributors of refrigerators in this city. The Bureau did aid with its advertising and literature on domestic electrification and the all-electric kitchen, and by displays of electric appliances in model homes, fairs, etc.

The average kilowatt-hour consumption per domestic consumer for the year 1934 was 588.84.

No change is contemplated in our present program, although studies are being made looking toward future load building in anticipation of Boulder Dam power.

●

Display ideas of unusual merit last year were those on the opposite page. Top, left, was a national prize winner in windows with which the B. C. Electric Railway Co. of Victoria won in a Canadian central station competition award of the Canadian General Electric Company, its annual radiotron display contest. Below it, a billboard by which the Rocky Mountain Electrical Assn. showed itself to be working in close harmony with the government's modernization program. Below that is a window which won for Northwestern Electric Co. a prize contest in Portland among the local merchants during a civic celebration. Bottom, a typical display set up by the Valley Electric Supply Co. display department, headed by J. U. Berry, in dealer windows throughout the San Joaquin system during the "free electricity" offer. Top, right, a dramatic piece worked up by displayman Frank Bevan of P. G. and E. and used extensively in displays of dealer's appliances in connection with the "half-off" offer. Bottom, dramatic photograph used by Utah Power & Light Co. to dramatize electrical service, at the year's big event, the modernization exposition in Salt Lake City

Electric Cookery Council of Southern California

By CHESTER E. DYE
President

NUCLEUS from which all electric range activities emanate in southern California is the Electric Cookery Council. The electric utilities functioning throughout the southern California area sponsor most of the electric range advertising programs. The year 1935, we feel confident, will be a banner year in the electric range industry. The enthusiasm displayed by the various electric agencies functioning locally, definitely prove to us that the ensuing year unquestionably will be an outstanding one in the sale of major domestic electrical appliances in southern California.

New Headquarters

New headquarters for this organization were located during the year. The meeting hall has a seating capacity of approximately 450. Dinners are served at this location at each regular meeting. The dinners are prepared in an adjoining kitchen which is equipped with three modern electric ranges and electric refrigeration. In this up-to-date model kitchen, a continuous sales school for the instruction of dealers and their salesmen on the use and operation of major domestic electrical appliances will be conducted under the auspices of the Electric Cookery Council during the ensuing year.

Membership

The membership of this organization consists principally of salesmen who are interested primarily in the sale of electric ranges, electric range manufacturer representatives, distributor representatives and electric utility men.

The various activities of this organization are financed through surplus and profits derived as a result of various social activities given throughout the year.

During the year 1934, regular semi-monthly meetings were held at which time an electrically cooked dinner was served to an average attendance of about 60. An attendance of 500 electrical men attended the opening sales meeting of the 1934 "spring campaign." The enthusiasm developed at the meeting decidedly influenced the success of this campaign.

Officers of the organization, elected at the annual meeting in December, are: Chester H. Dye, Bureau of Power & Light, City of Los Angeles, president; William Krueger, Estate Stove Co., vice-president; Vernon Sheblak, Bureau of Power & Light, recording secretary; Robert Mead, Public Service Dept., City of Burbank, corresponding secretary; Louis Singleton, Listenwalter & Gough, treasurer; Lloyd Bowles, Southern California Edison Co., Ltd., sergeant at arms; Dealer representatives on board of directors: Orlander Hammond, Desmond & Hammond Co.; Wm. T. Schenk, Schenk Electric Specialties Co.; Salesmen representatives on board of directors: Hal Collins, Barker Bros.; Hart Price, Manual Arts Sales Co.

"The Electric Ranger"

A local news bulletin is issued monthly for the benefit of the members of the Cookery Council and for all others interested in the sale of major domestic electrical appliances. This magazine, developed during the past year, has proved to be a most excellent method of disseminating information and of tying the electric industry more closely together.

Educational Programs Presented

At each meeting of the Cookery Council a portion of the program is devoted to sales and educational discussions and lectures. Programs of an interesting and educational nature have also been presented at various times before organizations closely affiliated with it.

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Glendale Trial Ranges Build Public Acceptance

By P. DIEDERICH
Superintendent, Public Service Dept., City of Glendale, Calif.

THIS department's activities have been centered on endeavoring to get public acceptance of electric cookery. In the past eight months we have been offering trial ranges to our customers. For the year 1933 there were only 60 ranges connected to our system, and largely through this inducement 272 ranges were connected to our system in

the year 1934, of which 160 were trial range installations.

Heretofore we have not had rates for water heaters but for the year 1935 we have available a one cent rate, and expect to undertake a promotional introduction of water heating.

As to refrigerators we have no record of sales, as all such sales of this appliance are made through the dealers. The average kilowatt-hour consumption per domestic consumer for 1934 was 620 on our system.

We have developed no special program for 1935 but intend to continue aggressively with our small organization in the effort to get public acceptance of electric cookery and water heating.

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Appliance Bureau is Most Important Ally

By A. E. HOLLOWAY
Vice-President in Charge of Sales, San Diego Consolidated Gas & Electric Co.

SINCE you have a separate report of the Bureau of Radio and Electrical Appliances of San Diego County, which gives a complete summary of our joint activities with dealers during 1934 and our plans for 1935, I will only summarize the important sales figures here. While we were active in all divisions of commercial and agricultural power as well as domestic sales, we feel that the most important features of our 1934 business were a result of the cooperative work of the Bureau.

The number of ranges sold in 1934 on our system was 229. Our quota for 1935 is 300. The water heaters sold totalled 32, and our quota for 1935 is 500 for we expect to be far more active on this appliance this year. The refrigerators sold by dealers and ourselves numbered 3,500, and in 1935 we expect that 4,000 will be sold.

Using the N.E.L.A. basis our average domestic kilowatt-hour consumption per residential consumer was 573. On a weighted average basis it was 600.

In our sales work we have sought to be one of the dealers in the appliance bureau and hence modeled our own sales programs after the programs set up by that organization.

●

Bureau of Radio and Electrical Appliances

By J. CLARK CHAMBERLAIN
Secretary-Manager

LAST January we presumed to the extent of predicting considerable improvement in the sale of electrical appliances during 1934. Our position was, that while making no prediction as to what business in general would do, we believed that the program of the Bureau as it developed, would be sufficient to cause electrical appliances to sell proportionately beyond other commodities. And it happened. Radios, refrigerators, washing machines, automatic ironers and numerous other appliances considerably exceeded 1933 sales, and in several instances, established all time records for San Diego County.

Detailed accounts of our 1934 campaigns have appeared in these columns and because space is limited, reference to them can be had in previous numbers.

Bureau Plans and Prospects for 1935

It takes no optimist to predict a good year for business in general and electric appliances in particular, at least as far as San Diego County is concerned. With our California Pacific International Exposition coming up soon to bring throngs of people here, and with the Federal Housing Act destined to greatly stimulate local building, the year of 1935 should be a good one. As in the past, however, our Bureau will not be content to allow electric appliance buying to take its own course, but will stimulate the purchase of things electrical through our many and varied promotions.

The year started off with an ironer campaign, designed to carry washers along at the same time. The advertising exclusively featured ironers. During February a special campaign to stress radio is in progress. It ties in the San Diego exposition, radio dealers and the amateur short wave radio enthusiasts in an unusual campaign to give publicity to the fair. Plans are also being formulated for another Chilled Food Institute in April. During the remainder of the year something will be doing every month so that the people of San Diego county may never for a moment forget the happiness that can be theirs by the greater use of electricity.

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Dealers on Edison Lines Make Excellent Record

By W. L. FROST
Vice-President in Charge of Sales
Southern California Edison Co., Ltd.

IN the latter part of 1933, it was decided, after considerable discussion, to inaugurate a new plan of merchandising whereby the company would refrain from direct selling in most instances and all sales would be turned over to the dealer. Assistance was to be rendered by a corps of company trained salesmen whose duty it was to assist the dealer in every way possible. The dealer was furnished with prospects for various articles, and was advised of the best methods to pursue. Ultimately he was often assisted in closing the sale.

Along with this idea the company financed dealers contracts, which relieved them of dealing with any finance company, and they were naturally not obliged to carry any large stock of appliances at any time.

We also supplied the dealers with advance copies of newspaper advertising on all campaigns, furnished display material for windows, and in a great many ways assisted them generally in promoting the use of electric appliances.

The plan in most instances in our opinion has been very satisfactory. As a result of this cooperative movement during 1934 the following articles were added to the company lines: Ranges 3,219, Refrigerators 1,778, water heaters 565, small appliances 5,820, washers 21,741, ironers 3,281, radios 36,567.

Our sales to other classes of consumers during the year 1934, were likewise satisfactory and we added new revenue from the following sources: Domestic and commercial light $714,000.00; industrial power 688,000.00; agricultural power 362,186.00; miscellaneous power revenue $359,814.00.

The total new income derived from all classes of power service amounted to $2,124,000.00.

Our plans for the year 1935, contemplate a continuation of the 1934 plan, which in some respects will be augmented by additional field salesmen.

To summarize, the number of ranges sold in 1934 was 3,219, all of which were sold through dealers. Quota for 1935 is 4,600. The number of water heaters sold in 1934 was 565, all sold by both the Edison Company and dealers. Quota for 1935 is 2,000. Number of refrigerators sold in 1934 was 17,867, all sold by dealers. Quota for 1935 is 22,000.

Kilowatt hour consumption per domestic consumer is not accurately available, because of a change in accounting classification. We estimate the figure at 680 kw.-hr. per consumer per year.

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Four Year Term Ranges, Flat Rate Water Heaters

By GEORGE T. BIGELOW
Manager, Commercial Dept.,
The Southern Sierras Power Co.

IN merchandising we did two things in 1934 that were an entire change from what we had been doing. On the first of March we started with our four year plan of selling ranges. This was a flat sum per month, which if paid for 48 months gave title to the range. This amount was set up for every range in the lines we carry. There were no extras of any kind to be added to this amount.

Consequently, it was possible for any employee of the company, merely by having a pamphlet showing pictures of the ranges and a figure under each pic-

DEALER SALES REPORT—NOVEMBER-DECEMBER, 1934

A Summary of the Dealer Reports Compiled by Associations, Societies or Bureaus, or Dealer Contact Departments of Utilities

APPLIANCE	P. G. and E. Co.[1] Nov. 1934	P. G. and E. Co.[1] Dec. to Nov.	San Diego Cons.G.&E.Co.[2] Dec. 1934	San Diego Cons.G.&E.Co.[2] Jan.-Dec. '34	1934 Est. total	San Joaquin Lt.&P. Corp.[3] Dec. 1934	San Joaquin Lt.&P. Corp.[3] June to Dec.	So. Calif. Edison Co.,Ltd.[4] Dec. 1934	So. Calif. Edison Co.,Ltd.[4] Jan.-Dec. '34	Utah Power & Lt. Co.[5] Nov. 1934	Utah Power & Lt. Co.[5] Year to Date
Ranges	109	1,329	22	203	229	111	675	251	2,690	76	
Water Heaters	36	476	8	28	32	53	376	130	620	4	
Air Heaters—aux.	909	3,409	284	554	1,000	....	....	345	1,349	293	
Air Heaters, 220 volt	60	476	....	....	....	104	345	....	....	....	....
Refrigerators	1,710	24,225	137	2,620	3,500	117	1,564	1,156	18,060	148	....
Dishwashers	4	92	....	....	....	4	14	....	....	....	....
Washers	2,914	26,377	220	2,283	4,000	353	2,654	1,955	22,713	665	....
Ironers	687	6,189	43	353	485	72	366	372	3,502	39	....
Vac. Cleaners	1,540	20,316	164	850	1,400	144	700	764	5,844	732	....
Radios	7,364	68,383	1,227	7,690	10,000	878	4,032	6,141	39,441	1,464	....
Mixers	....	....	266	632	950	523	883	1,614	3,798	188	....
Cookers & Caseroles	....	....	65	578	735	58	227	124	430	6	....
Irons	....	....	277	1,885	3,150	582	3,027	2,176	13,439	858	....
Waffle Irons	....	....	274	592	1,000	751	1,345	1,957	5,102	337	....
Toasters	....	....	366	961	1,565	647	1,564	1,924	6,750	643	....
Table Stoves, Grills, etc.	....	....	39	395	710	657	1,575	917	3,307	1,042	....
Heating Pads	....	....	145	304	450	....	....	926	2,310	416	....
Curling Irons	....	....	....	....	....	....	....	161	902	230	....
Percolators & Coffee Makers	....	....	217	676	1,150	561	1,242	1,134	3,671	123	....
Sewing Machines	1,231	12,849	10	50	250	....	....	....	....	....	....
Clocks	....	....	....	....	....	495	1,166	1,243	3,962	407	....
Fans	....	....	....	....	....	....	....	9	2,372	19	....
Floor Polishers	18	276	....	....	....	....	....	....	....	....	....
Sun Lamps	....	....	....	....	....	16	40	44	274	18	....
Portable Lamps	....	....	....	....	....	511	933	....	....	3,975	....
Yard Lights	....	....	....	....	....	27	340	....	....	....	....
Misc. Small Appl.	....	....	380	1,486	2,000	608	1,587	1,013	4,643	83	....
Total Dealers	....	1,440	....	....	100	....	98	....	528	....	....
No. reporting	923	....	75	75	....	102	....	536	....	242	....

[1] P. G. and E. report cumulative from Dec. 1, 1933—Reports obtained only on major appliances upon which accurate reports are available from dealers' accounts. Total dealers include gas as well as electric dealers. November figures latest available because of large territory served.

[2] Gathered by Bureau of Radio and Electric Appliances of San Diego County. Reports from dealers in first two columns. Estimated total sales derived with aid of cooperating distributors and knowledge of the few non-reporting outlets. Clocks, fans included under miscellaneous.

[3] Includes dealer reports from Midland Counties Public Service Corp. territory also. Compiled by Valley Electrical Supply Co. Reporting started in June, 1934.

[4] Includes reports from dealers on San Joaquin Valley system of the company as well as Southern California areas served by this company. Reports from only 60% of dealers so far.

[5] Includes Utah Power & Light Co. territory in Utah, Idaho and Wyoming. Also Western Colorado Power Co. territory. November figures latest available because of large territory served.

ture, to tell any customer just what that range would cost. I believe this plan is what caused us to more than double our range sales.

On Sept. 24 we started selling under our new water heater rate. This is the rate we worked out by experimenting for a year. Under it a customer pays a flat amount for his hot water per month. It applies to range users only, and the average family of four pay $3.00 per month for their hot water, no more, no less.

We sell the water heaters on a six year plan; that is, the customer, by paying a certain definite amount of money each month, owns the water heater at the end of six years, or 72 months. Like the range plan, all charges such as interest, sales tax, etc., are included in this flat rate, each size of water heater having its own price. Since this rate has been in effect I believe we have sold more water heaters in the same space of time than we have any other article in the past.

As our quotas are not finally set up for 1935, I cannot give them at this time, but the following were sold during 1934, based on 11 months actual and one month estimated sales: Ranges 506, water heaters 222, refrigerators 335.

Figures for November and December are not in as yet, but estimated on the 12 months previous to November, I believe our average annual domestic consumption will run well over 915 kw.-hr.

In the power field our work has been the same as in the past, that is, a thorough covering of the field, with the exception that under present conditions we are devoting more intensive work to the mining load.

During the coming year we expect to continue as we always have in the past with the tried and proved methods, but always on the lookout for new plans, as conditions seem to warrant.

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Inter Mountain

Concentrated on Major Appliances and Lighting

By G. W. MILLIKEN

Vice-President in Charge of Sales, Southern Colorado Power Co., Pueblo

SPECIAL merchandising activities for the year 1934 were devoted principally to major appliances such as ranges, water heaters, and refrigerators. Various campaigns were conducted throughout the year with the heavy duty salesmen working constantly on major appliances. An extra force of eight men were employed on the Fall lamp campaigns, "Better Light-Better Sight" activity, and on miscellaneous appliances throughout the year.

The number of electric ranges sold on our system in 1934 was 124, and the quota for 1935 is 228. Water heaters to the number of 58 were sold in 1934 and the quota for 1935 is 120. Refrigerators sold in 1934 totalled 316, exclusive of dealer sales. While we have no complete record of dealer sales over the territory our estimate is that 500 were sold, making a total for the system of about 816. Our own quota for 1935 is 350.

Kilowatt-hour consumption per domestic consumer for 1934 was 580.08 kw.-hr.

Our program for 1935 is set up practically along the same lines as 1934, with a few additional men in our sales organization. We will conduct several special campaigns on major appliances and make a special effort on commercial and residential lighting.

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Conducting Complete Range User Survey

By P. M. PARRY
Vice-President and Commercial Manager, Utah Power & Light Co.

ONE of the first activities which we will undertake this year is a complete survey of every electric range customer on our lines. To be sure that all equipment is in good operating condition a special offer will be made on new equipment to replace all worn-out electric ranges and an effort will be made to replace all burned-out units on ranges that are still in good condition. We also hope to restore to active use electric ranges that have been out of service because of the depression. This program will consume the first ninety days of the year and will be followed immediately by an intensive campaign to secure new customers.

Electric range sales for the year 1934 by our company totalled 912. This represents a substantial increase over the previous year and all things considered, such as drouth conditions, lack of building, etc., we think is a very reasonable performance. We estimate that electric range sales will improve during 1935, and have established a quota of 1,000.

We faced a difficult situation with respect to water heating during 1934. In 1929 and 1930 we sold approximately 2,000 electric water heaters on a combination rate structure which resulted in too high a cost for electric water heating service. As a result when the depression came along we lost almost all of this kind of business. A new off-peak rate structure was made effective in March, 1934. Our first responsibility, of course, was to attempt to restore to active use water heaters previously sold but which were out of service.

In addition to this program we succeeded in selling 92 new installations net. Actual new sales were 161, but 69 repossessions reduced the net figure to 92.

We believe that we are going to have a reasonably successful year on water heaters during 1935 and have established a quota of 500 new installations to be made, in addition to further restoration of service where the customer already has equipment.

Refrigerator sales for 1934 amounted to 1,232 by our company and approximately 2,800 by dealers, making a total of 4,032. We propose to continue normal sales activity on refrigerators, but are making no special effort to increase our own sales. We prefer to encourage dealers to build-up their sales. Consequently we have established a quota of 1,200 units for our own sales and expect the dealers will sell a minimum of 3,014, making a total for the territory of 4,214.

The average kilowatt-hour consumption for our system per customer was 716. We hope to increase this by 30 kw.-hr. per customer during 1935.

All told, we had a very successful new business operation in 1934. All assignments for gross sales and major appliances set-up for the year, with the exception of electric water heaters, were exceeded by substantial margins. Our commercial lighting and heavy duty electric cooking load assignments were also exceeded by substantial margins. A six months' quota on study lamps, started Oct. 1, was secured before Christmas, in our home lighting program. This assignment represented 5 per cent of our customers, or 4,350 units of this type.

Carrying the electric kitchen everywhere on its extended system, the Utah Power & Light Co. used this special truck. In each city the stage and kitchen were set up and a school conducted for the women of that community. Lighting of the home was also demonstrated in a one-act skit

In spite of the fact that there was little improvement in the heavy industries in our territory, principally mining, power sales for the year were built up somewhat because of drouth conditions and the need for electric pumping, so that a reasonably good showing was made also in this department.

Plans are being made for increased quotas in all departments. An analysis has been made of the possible sales by all agencies in the field, which we are attempting to build-up through our Dealer Coordination Department, and we have an objective of approximately $3,000,000 in domestic appliances and another $500,000 in commercial.

Trial Inducement Rate Tried Out in One District

By R. R. ROWELL
Commercial Superintendent, The Western Colorado Power Co., Delta, Colo.

OUR commercial program for 1934 included an electric range replacement plan, the appeal for complete electric kitchens, and a "Better Light-Better Sight" campaign beginning Oct. 15. In one of our districts we established a trial commercial rate which reduced previous billings by some 20 per cent to see if our customers would actually use more kw.-hr. if given a lower rate.

This trial proposition has been in effect for only four months and while a large percentage of our commercial customers in this district have taken advantage of the decreased rate by increasing their usage, yet the rate has not been in effect for a sufficient length of time to arrive at any committment.

In one district we also took a very active part in a Modernization Exposition, which no doubt stimulated, in that locality, business during the fall months with respect to building, painting, and remodeling and decorating. Our gross merchandise sales for 1934 were slightly in excess of 50 per cent over 1933.

Our company sold 33 electric ranges, the dealers sold 2, making a total of 35 electric ranges sold on our system in 1934. The range quota for 1935 is 50.

No water heaters were sold by either ourselves or dealers in 1934. However, we have set up a water heater quota of 25 for 1935 anticipating a more favorable water heating rate for this year.

Our company sold 95 electric refrigerators, our dealers sold 110, making a total of 205 electric refrigerators sold on our system in 1934. Our quota of electric refrigerators for 1935 is 72 units, which is for our own sales only. Our quota for 1935 is smaller than our actual sales in 1934 because of the fact that we expect greater sales on the part of dealers this year than ever before, and will encourage dealer sales even though it means decreased refrigerator sales for our own company.

The average kilowatt-hour consumption for 12 months ending November, 1934 for our urban domestic customer is 648. The average for 12 months ending November 1934 for our rural domestic customer was 337.

Our 1935 sales activity will be directly or indirectly associated with the national housing program. In our opinion there is going to be a generous acceptance of the national housing program on the part of our customers, and we in the electrical business are going to be rewarded with a proportion of the modernization expenditures in direct relationship to the effort we put into it.

Three-State Program Links All Mountain Region

Public Service Co. of Colorado, Rocky Mountain Electrical Association and Electrical League of Colorado Interwoven in Selling Activities

INTERWOVEN into a composite and interrelated sales program which affects and embraces every branch and function of the electrical industry, the intermountain region cannot be broken into its individual parts and any one of its divisions treated separately. Gaylord B. Buck, general commercial manager of Public Service Co. of Colo. is also president of the Rocky Mountain Electrical Assn. The two organizations of which he is an important and integral part are so closely related from a standpoint of merchandising procedure that a report on one almost inevitably involves mention of the other. Hence, in summarizing commercial activities at Public Service Co. for 1934, and forecasting plans for 1935, there is an interlacing of policies which can scarcely be avoided.

Public Service Co.'s increase in appliance sales and in load is largely due to its direct tie-in and support of Rocky Mountain Electrical Assn.'s business development program, now entering its second year. And it is worthy of note that Guy W. Faller, vice-president and general manager of the utility, began the New Year by pledging continued support to the cooperative activity which embraces Colorado, Wyoming and New Mexico, including hundreds of dealers, distributors and others engaged in the sale of appliances or service.

Preliminary to launching the 1935 program, every manager on the company's system attended a two-day conference in Denver, Jan. 22-23. The managers also attended a two-day conference sponsored by R.M.E.A., Jan. 24-25 where practically every utility head in the three states participated in discussions pointing toward the greatest business-capturing movement ever inaugurated in the territory.

An appliance-promotion schedule for the first six months of the year was drawn up, and every dealer in the mountain area furnished copies to guide the 1935 activity. Mother's Day, Better Homes Week and even Ground Hog Day, as well as other special dates, periods and events are listed in the schedule. Suggestions to dealers as to the best ways in which to tie in their merchandising activities to these dates are included in the sales plan, which will be followed to the letter by Public Service Co. of Colo.

In 1934, Public Service Co. sold, gross, electrical appliances amounting to $733,772. Estimated gross sales (electrical) for 1935 will be $763,772. This does not include appliance and equipment turnover in the gas department. Electric ranges sold totaled 196; The 1935 budget is 225. The total electric water heaters sold were 17, with a 1935 quota of 10. These appliances, however, present no adequate picture of sales results. Refrigerator sales by the company were 1,376; 1935 quota is 1,435.

Average kilowatt-hour consumption per domestic customer during 1934 for the entire Public Service Co. system was 498.8.

Truer measure of the region's sales activities may be gained from the enthusiasm over improved sales by all dealers and distributors in the three states covered by the R.E.M.A. As an index of this activity the Christmas campaign just closed is typical of its organization and far reaching effect.

Figures compiled by George E. Lewis, executive secretary of the Rocky Mountain Electrical Assn. show that 125 Denver firms, in addition to Public Service Co. of Colo., participated. Outside the Denver area, 275 dealers and 18 utilities cooperated in the tri-state campaign. Conservative estimates place 15,000 people actively engaged in selling something electrical for Christmas.

Outdoor Lighting Unique

Another unusual department of the Public Service Co., unusual in the manner in which it is run for the upbuilding of dealer and contractor business, is the outdoor lighting department, under the single direction and operation of one man, Dana W. Rowton. This department has submitted a report on 1934 accomplishments which, reduced to terms of added power placed on the line, equals the sale of 715 electric refrigerators. The department lists:

Flood Lighting: Permanently increased load by 300 kw.-hr. during the Summer and Fall yard and garden lighting activity, sponsored jointly by the Rocky Mountain News, Rocky Mountain Electrical Assn. and Electrical League of Colo. Temporary flood-lighting—7,000 kw.-hr.

Softball Field Installations: Fifty-six new jobs were placed in various parts of Colorado tributary to Company lines. Mr. Rowton has achieved fame for his aggressive promotion of softball played under lights at night. He is largely responsible for the softball rage that has swept the Rocky Mountain region.

Christmas Lighting: 58 kw. connected load for nearly two months on 16th street, Denver's principal downtown merchandising artery; 50 kw. for the same length of time for civic illumination; 55 kw. for 60 days in commercial displays, exclusive of municipal decorations; 120 kw. connected in residence lighting for the Christmas lighting contest. This does not include homes not entered in the competition.

A summary of the departments work for the year shows a permanently increased load of 395,330 watts.

Emerging from its dynamic Christmas crusade, R.M.E.A. has already presented to the trade a detailed plan of procedure for the first six months of 1935. It began in January with laundry equipment. Air conditioning is to be given a big play.

Mr. Buck was reelected to the presidency of the R.M.E.A. and George Lewis continues as its active and sales minded executive secretary. The Electrical League of Colorado, which is more representative of every branch of the industry has just had its annual election. The personnel of its officers, as well as the leadership of its experienced and dynamic manager, George Bakewell, Jr., assures it of a year in 1935 which will move the already high records of cooperation in this region a few notches higher on the national scale.

At its final 1934 meeting the Electrical League of Colorado elected E. E. (Ernie) Brazier, district manager for General Electric Supply Corp., its president. He succeeds Charles S. Newell whose leadership during the past year brought the Electrical League into national prominence as a result of multiple activities on its own account and as a powerful factor in Rocky Mountain region electrical industry Sales Rally enterprises.

Dean D. Clark, who is assistant to president of the Mountain States T. & T. Co., was elected treasurer; and O. L. Mackell, assistant secretary of Public Service Co. of Colo, treasurer.

The four League divisions elected as members of the board of directors:

Contractors: L. A. Vosmer, chairman; R. Y. Chedister, W. A. J. Guscott, N. R. Mendenhall, C. F. Oehmler, E. E. Stettler, D. D. Sturgeon.

Manufacturers: John J. Cooper, chairman; P. A. Douden, F. L. Easton, K. L. Francis, S. J. Kester, W. Trudgian, J. S. Veatch.

Distributors: J. C. Davidson, chairman; E. V. Beck, E. E. Brazier, A. C. Cornell, H. A. Fluckey, L. H. Gross, Harry Moll.

Utilities: R. G. Gentry, chairman; G. B. Buck, O. L. Mackell, F. F. McCammon, H. T. Rankin for the power companies. Charles S. Newell and G. H. Stephens represent the telephone company.

EDITORIAL

FEBRUARY, 1935

$5,000,000,000 Market

UNCLE SAM'S purse is to be replenished to the extent of $5,000 million for the purpose of financing works projects to create employment and prime the pump of the durable goods industries. Herein lies a great opportunity for the electrical industry—for wholesalers, manufacturers and the power companies. With judicious cooperation, many of the projects can be directed into channels which will create business and load, instead of providing competition.

Questionnaires have been sent to cities, towns and hamlets, to states and counties, requesting data on possible badly needed local projects for which financial assistance is required. With the questionnaires were lists of suggested undertakings which would be considered favorably. Here are some of them: street and highway lighting systems, lighted playgrounds and swimming pools, improvements to water systems and new building construction. Many of the suggested projects require electrical equipment, material and supplies and many require power in their operation. To them might be added modernization of schools, court houses and other public buildings where better lighting equipment should be one of the first essentials.

Through assisting in the preparation of plans for undertakings of this character, the industry will not only be meeting a public responsibility, but at the same time will be building business for itself.

On the Home Front

NOT even those who predicted that 1934's electrical front would be in the domestic field could have visualized the extent to which this was to come true. Only the figures themselves could give credence to the idea, and the figures have certainly established the idea as a fact. Although some companies did report a material regaining of industrial load, and mining revival did account for considerable new business, still it was the home sector upon which the most brilliant advances were made.

Most surprising has been the sudden acceptance and adoption of lighting by the public. No small measure of this has been due to the sudden awakening brought about by the dramatization of the seeing side of lighting. Another factor has been the availability of a "packaged" article, the I. E. S. lamp, which had both appearance and scientific sanction in its favor, and which could be purchased and used easily and without additional fuss or detail. The thinking electrical contractor will read in this a significant idea. Wiring, as it is today, is regarded as a nuisance rather than a convenience, and perhaps some means should be found to "package" it if a real market, hungry for exploitation, is to be loosened and made available.

The electric range received perhaps its greatest ally in the National Housing Act loan provision permitting appliances permanently connected to be financed under its provisions. And with this has come a long built-up desire for an all-electric kitchen brought nearer to realization.

If the "abundant life" is to be electric, the West, during the past year, has already made several strides in its direction, and 1935 gives all promise that the march shall go on.

The Price Is Too High

TRAFFIC studies repeatedly have shown that the lack of proper illumination is a dominant factor in the growing frequency and severity of nighttime automobile accidents. In towns and metropolitan areas raising the levels of street illumination has, without fail, acted to decrease the accident rate. Trial installations of modern highway lighting also promise a further reduction in the staggering death rate and huge economic losses caused by night accidents. Typical of the results that can be accomplished by adequate highway lighting is the accident record on the Bayshore Highway out of San Francisco. On a three-mile stretch which has been lighted, night accidents decreased 40 per cent during a period when daytime accidents increased 30 per cent.

Perhaps no phase of Better-Light-Better-Sight activities offers more tangible benefits to humanity than highway lighting. Improved highways and streamlined cars invite the high speeds that cannot help but increase the accident rate unless visibility for the driver is improved.

Aside from the large potential volume of business in new equipment and revenues that its universal adoption would bring, highway lighting presents the electrical industry with a rare opportunity to enhance its record of constructive public service. The responsibility for practical and economical highway lighting and for the organized efforts necessary for its adoption lies with the industry. Some 16,000 lives a year are the price of delay.

Unprofitable Customers

LOW energy rates of themselves will not create a market for either electricity or appliances. This fact was brought out forcibly by Lester S. Ready, eminent consulting engineer now engaged on the Federal Power Commission's surveys of the industry, at the Northwest Planning Conference in Seattle recently. Mr. Ready said:

"The effect of lowering rates on domestic consumption cannot be reduced to a formula, because so many other factors are important. Care should be exercised in reducing the top steps of rates because of the possibility of making a number of already unprofitable customers even less profitable."

These minimum bill customers to whom Mr. Ready refers constitute both a problem and an opportunity. On some utility systems they number as high as 30 per cent of the total residential customers. Analysis shows they fall in two groups: those whose incomes are so small that every economy must be practiced even to keeping their electric bill at a minimum, and those who can afford to use more electricity but because of misconception or lack of knowledge, keep their bills low. Both groups are unprofitable and a mere reduction in rates will only make them more so. They must be encouraged to increase their use so as to earn a lower rate.

One Pacific Coast utility plans to direct special effort at this class of customer during 1935. Its approach will be strictly on a service basis. The salesman will actually try to help them to realize greater benefits in the form of added convenience and economy through using more electrical service. The experience of this company may develop a practical solution to a problem that has existed ever since the industry started.

For a Fast Getaway

BACK in 1929 the American business bus crashed through a red light. It was going so fast and its passengers were so absorbed in pyramiding paper profits and bigger and better consolidations that they could not even see and hence did not heed the yellow caution signal that warned that the light on the highway to profits could not always stay green. No matter what the cause, the joyride was over. After re-assembling the pieces, business has been waiting at the intersection four long years for conditions to clear and the green light to shine once more. A lot of passengers became discouraged and said that the light was never going to change again. Others climbed off and began to tinker with the mechanism that controlled the light. Still others tried to clear away some of the congestion.

Today the yellow light is shining again, warning traffic that the business highway is about to be opened. The statistics, not only those compiled for this issue of ELECTRICAL WEST, but also those recorded in various business indices, indicate that the tremendous mass of the whole business structure is moving forward, as yet almost imperceptibly. Many business men characterize the movement as the first symptom of the irresistible upward surge of the much-maligned business cycle.

Viewing the past performances of business, this improvement is timed almost exactly with the upswings following other reverses. The alphabet jugglers in Washington may have rippled the surface of the groundswell of the cycle, but to many seasoned economists the fundamental shape of the business curve has not been seriously affected. Either because of or in spite of Federal recovery activity, pessimism seems to have run its course.

In 1935, then, heed the yellow light. Analyse what it may mean, not in the perspective of the past four years of depression, but with the sound common sense that tells us that people are going to eat, be clothed, entertained, housed and transported in the future just as they have in the past; that obsolescence and technological advancement will soon catch up with all our existing plants; that the natural optimism of the American people is bound to reassert itself in a forward drive for better living.

In refusing to concede the defeat of American business methods and American standards of living, the people of this country are proving that the United States is the greatest marketplace on earth. When the public decided last fall that further self-denial was fruitless and that it was going to enjoy life again in spite of the depression, the result was one of the greatest Christmas buying seasons in business history. And the public has not stopped buying yet. It is rapidly becoming a seller's market for those who have what the public wants.

Think what all this means to the electrical industry with literally thousands of bargains in conveniences and comforts for the home. Think what it means in terms of electrical markets for old homes that must be modernized and new homes that must be built in the next few years. Think what it means in new electrical equipment for the progressive industrial plants that also will get in step with the times.

News of Note + + +

Northwest Business Conclave Program Told

Vancouver, B. C., Feb. 21 and 22, 1935, are the place and date of the annual spring conference of the Business Development Section, Northwest Electric Light & Power Assn. Headquarters will be at the Vancouver Hotel and sessions will be held in the auditorium of the B. C. Electric Railway Co. of that city. The meeting will be under the direction of Tom D. Fulford, sales manager, Puget Sound Power & Light Co., Seattle, chairman of the Section, while local arrangements are in the hands of W. C. Mainwaring of the British Columbia Electric Railway Co., Vancouver.

The program this year, as usual, will divide into the principal fields of commercial activity—domestic, commercial and industrial, and rural. The theme of the program will be the exposition of successful load building practices. In some cases reports will be by committees, and in others, individual companies that have made an outstanding success in the promotion of load in a particular field will be asked to report fully how this success was attained. Motion pictures and skits will form an important feature of the program.

Outside speakers tentatively arranged for at the time of writing are Dr. G. W. Allison, Edison Electric Institute, New York; Davis DeBard, sales engineer, Engineers Public Service Co., New York; William Christy, Hotpoint Co., Atlanta; and possibly an optometrist to discuss the relation of modern optometry to the "Better Light-Better Sight" movement. Among outside subjects to receive attention will be the latest information on the progress of the E. F. H. A. in promoting the use of electrical appliances in the Tennessee Valley.

In the Residential Sales Bureau under Glenn L. Jackson, The California Oregon Power Co., Medford, chairman, beside the showing of promotional films and skits, there will be individual company reports on successful campaign methods on various appliances. One of the most elaborate and effective dealer organization plans in the territory, i. e. that set up throughout the territory served by the Idaho Power Co., will also be explained.

The Commercial and Industrial Sales Bureau with Carl L. Hoffman, The Washington Water Power Co., Spokane, as chairman, will present reports of four committees. The report of the Industrial Power Committee will include a factual study covering competition with small Deisel engines.

C. J. Hurd, Mountain States Power Co., Albany, chairman of the Rural Sales Bureau, will present his program in two parts: (1) A sound film entitled "Jim Stays on the Farm" written, acted and edited largely by men in his own company, illustrating some 20 applications of farm uses of electricity; (2) An analytical study entitled "Does Rural Electrification Pay?" by J. C. Scott, Puget Sound Power & Light Co., bringing out the economic value of rural electrification to the general territory in which it is promoted.

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Pasadena Utility to Spend $375,000 During 1935

Construction of a new 12,000-kw. capacity substation and extensive installation of underground conduits is planned by the Pasadena, Municipal Light and Power Department as principal units in its 1935 program of extensions and betterments, according to C. W. Koiner, Pasadena city manager. The new substation, to be known as the Maryland station, will be erected on Los Robles Ave. near Colorado St.

The total cost of the substation, designed to take care of the present overload on the downtown system, is estimated at $375,000. The department has set aside $120,000 of department funds for underground conduits during the year. The first of these will be installed on Washington St., one of the principal east and west thoroughfares. This work, according to Mr. Koiner and Benjamin Delanty, general manager of the department, is expected to provide considerable employment for Pasadena workers during the year.

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• WORK OF REBUILDING the second Salmon Creek power plant in Juneau, Alaska, involving the expenditure of approximately $100,000, is now underway according to L. H. Metzgar, general manager of the Alaska Juneau Gold Mining Co. A fireproof building will house the new plant. Two miles of flume are included in the improvement.

●

• THE SOUND CONSTRUCTION & ENGINEERING CO., Northern Life Tower, Seattle, submitted the low bid of $286,240 to the Seattle board of public works for construction of the "City Light" Building on Third avenue and Madison street. Fifteen bids were handed in.

Plan Spring Conclave at Fresno for P.C.E.A.

Plans for a joint spring conclave of the Operating Economics and Business Development Sections of the Pacific Coast Electrical Assn., to be held in Fresno some time in April, have been announced by A. H. Markwart, president of the Association. The conclaves are being held for the presentation of the winning problem papers in the contest now being sponsored by the Association.

Interest in the preparation of papers offering solutions to the eight problems presented in the December issue of ELECTRICAL WEST will be stimulated by the announcement that winners are to present their solutions at the Fresno meeting. Plans are being laid for intra-company contests in many cases.

Pacific Gas and Electric Co. has developed a plan whereby its system is divided into three divisions with a separate contest to be conducted on each one of the eight problems in each division. The employee preparing the best solution to each of the eight problems in the three divisions will win as a prize a trip to the Fresno meeting. A somewhat similar program will be conducted by the Southern California Edison Co. Various means are being employed by other companies to stimulate interest in the submission of solutions to the problem papers.

Those in charge of the contest for the Association have asked that emphasis be placed on the fact that an employee must be a member of the P.C.E.A. in order to compete for the $680 in prizes set up for the eight problems.

●

• AWARD OF CONTRACTS totaling $371,330 for oil circuit breakers for the Los Angeles Bureau of Power and Light Boulder Dam transmission system has been made by the Municipal Board of Water and Power Commissioners. General Electric Co. was given the contract to furnish four special 138,000-volt oil circuit breakers at the price of $120,450. The Kelman Electric & Manufacturing Co. was awarded the contract to furnish sixteen oil circuit breakers at a figure of $250,880. The equipment will be used at the Bureau's receiving stations.

●

• HAWAIIAN ELECTRIC CO., LTD., Honolulu, is preparing plans for placing a portion of its Honolulu distribution system underground. It is estimated that the work will require the expenditure of approximately $300,000.

Rate Reductions Ordered For Washington Utilities

Reduction in the rates of three power utilities serving Raymond and South Bend in Pacific County, Westland and Graylands in Grays Harbor County and Forks, in Clallam county, Washington, were ordered on January 4 by the Washington State Department of Public Works. The orders affected three utilities: the Willapa Electric Co., serving the South Bend—Raymond district; Twin Harbors Electric Co., Westport—Graylands District, and the Olympic Public Service Co., Forks and vicinity.

Rate reductions averaging 12.63 per cent were approved for the Willapa company in a supplemental order issued by the department. The new rate schedule was made retroactive to January 1. The savings to customers will amount to $10,700 a year. The rate schedule order in the Willapa company's case supplements an original order which directed the company to revise and lower its rate schedules in cooperation with the department's engineers. The same procedure was followed by the department in the other two cases. The two companies were given 15 days to file new schedules for consideration by the department. The department also ordered the Olympic company to eliminate a service charge of 75 cents per meter per month for residential and commercial customers.

●

Legislature Approves Los Angeles Amendments

Unanimous ratification by both the California senate and assembly of the ten city charter amendments, proposed by the Los Angeles Department of Water and Power and adopted by a heavy vote at the September 27 election, will enable the city to proceed with its plans to acquire the electric system of the Los Angeles Gas and Electric Corp. according to members of the board.

Three of the ten amendments, 16-A, 17-A and 18-A, adopted by the voters and ratified by the legislature, enable the Water and Power Commissioners to proceed on a more satisfactory basis with negotiations for acquiring the company's electric system. One of the amendments authorizes the department to borrow money from the Federal government, or any of its agencies, for this purpose, the principal and interest on such loans to be paid from the revenues of the Bureau of Power and Light.

The other two amendments permit the purchase of the system, subject to outstanding bonds of the utility, and provide for retaining employees of the company when the electric system is acquired by the city.

• OFFICIALS of the Washington Water Power Co. at Spokane announce the completion of plans by Architects Whitehouse & Price, Spokane, for a two-story reinforced concrete and steel addition to the company's office building on Lincoln St. The structure, which will be used for office, display and warehousing purposes, will be 72 x 125 ft., and will cost $175,000. The first floor, as planned, will house departments for warehousing and sale of electrical appliances and for departments which meet the public and the second floor will be set aside for a large auditorium. Date for starting work has not been announced.

• STEEL IS now being erected for the new plant of the Premier mine at Stewart, B. C., which will replace the one recently destroyed by fire. Three 630-hp., six-cylinder, Fairbanks Diesel engines, together with usual auxiliaries, will be supplied by Canadian Fairbanks-Morse Co., Ltd., Vancouver, while the Dominion Bridge Co., Ltd., will supply the steel.

●

• EXTENSIONS to the street lighting system of Palo Alto, Calif., costing approximately $25,000 are contemplated by the city council. The installation would include bracket lights on some streets and standards on others.

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Outdoor Safety Switches

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NO Protective Enclosure

Square D outdoor switches are for every outdoor lighting service. Water-tight top and overlapping joints effectively seal the switch against moisture, so that unsightly protective enclosures are not required. All knock-outs are located below live parts. Switch box is fabricated of heavy galvanized steel coated with aluminum paint. The outdoor safety switch is another Square D achievement pioneered in the West.

●

At right is illustrated the Square D outdoor safety switch in closed position. Features: Water-tight hinged cover; wide overlapping flanges on cover; drip hole in bottom, preventing accumulation of moisture; water-tight bushings around operating handle; all metal parts of switch cadmium plated; removable cover for ease of wiring.

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City Appeals NRA Loan Judgment

An appeal has been forwarded to the Federal district court of appeals at San Francisco by W. B. McFarland, Couer d'Alene, Idaho, city attorney and his associates, in the suit of the Washington Water Power Co. against the city of Couer d'Alene, in which an order was issued by Federal Judge C. C. Cavanah recently restraining the city from proceeding to secure funds from the PWA to construct municipal electric and water systems.

It is believed that the hearing of the appeal will be expedited at San Francisco and from there it is expected that the case will go to the United States Supreme Court.

The power company contends that the proposed loan would be unconstitutional and Federal Judge Cavanah ruled that it was not within the scope of the National Industrial Recovery Act.

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Governor Merriam Asks for State Power Survey

Calling for complete candor on a matter which has become "an issue frequently misunderstood and misrepresented, in politics and political campaigns," Governor Frank F. Merriam, of California, in his message to the Legislature recommended the appointment of a commission to investigate the state's water and power program, to be authorized to investigate the feasibility and desirability, from a standpoint of public interest, of the acquisition by the state of electric power generating and distributing facilities now under both private and public ownership.

He pointed out that there are two electric power groups, one owned by thousands of investors operated under private management, and the other owned by the people and managed by public authority, developing and utilizing the same resources. No wide difference exists in the general rates charged by these competitive groups. The privately owned utilities, he pointed out, were subject to regulation by the government and required to pay various kinds of taxes, whereas the publicly owned utilities have not done so.

"This problem should not be approached from the standpoint of the partisans either of public or private ownership, but solely from that of the economic well being of the state as a whole," he said. Entrance of the Federal Government into gigantic power development projects, he said, has added to the uncertain status of the privately owned utilities. The commission, he suggested, should have not less than nine or exceed fifteen persons and should "discuss the possible purchase and obtain independent estimates of the sale value of both privately and publicly owned operating systems."

"It must be kept in mind that there are more than 250,000 men and women in California whose savings are invested in the privately owned electrical industry, and that this very large group of our population is entitled to fair treatment in any negotiations looking to the acquisition, by purchase, of the properties whose securities are held by the investing public."

He went on to say that whether privately or publicly owned it was to the public interest to interconnect the entire systems in order to bring to the public the benefit of the best diversity of load now serving agriculture, industry and residential areas.

For jobless relief, Governor Merriam also advocated a 3 per cent consumers' tax on electricity, gas, telephone, telegraph and other utility services, both public and private, to yield an estimated annual revenue of $16,000,000.

●

Rate Expert Claims Goodwill of No Value

Rate expert Guy Kenny for the city of Fresno placed a valuation of $1,388,411 on the city's distribution system of the San Joaquin Light and Power Corp. at a continuation of the valuations hearings being conducted before the California Railroad Commission. An alternate valuation of $1,622,398 based on a 5½ per cent sinking fund basis of depreciation also was submitted.

These figures compare with valuations ranging between $1,400,000 and $1,800,000 submitted by engineers of the Railroad Commission. No figures have been submitted as yet by the company.

The city's rate expert allowed a going concern value of $173,500, physical severance damages of $64,000 and a telephone severance damage of $16,500. In response to a question regarding allowance for going concern value, the rate expert stated:

"A public utility as a rule does not have much good will. It would be very difficult to establish a good will value, because by the nature of the business itself, a spirit of antagonism is built up rather than good will. Public utilities have a monopoly and the people are forced to patronize them whether they like it or not. This situation does not call for much good will and I believe there is no such value in these cases."

The hearing will be continued on Feb. 26.

Utility's Suit Contends NRA Loans Unconstitutional

Public Service Co. of Colorado, in its fight against municipal ownership at Fort Collins, Colo., has filed a suit in equity with the Federal district court at Denver, asking for an interlocutory injunction to restrain the city of Fort Collins from building a publicly-owned power plant with funds derived from Public Works Administration funds.

This petition reopens a case which dates back to August 10, 1933, when application for a grant and loan for acquiring or constructing a municipal plant was made. PWA entered into agreement to purchase $663,000 municipal bonds for this purpose, under stipulated conditions. Since that time, the city of Fort Collins has been attempting to qualify for the government loan by seeking to acquire Public Service company's Fort Collins distribution system—an effort thus far unsuccessful since appraisals by city engineers and Company experts have been far apart.

Suit by Public Service company constitutes another challenge to legality of the National Recovery Act. The complaint set forth that Public Service company provides electric service for 123,000 customers in Colorado; has $26,579,000 in outstanding first mortgage bonds; that Fort Collins has a population of 12,000 and 3,500 electrical users; further, that building of a city-owned plant with federal aid would cause numerous other cities to ask government loans for similar purposes and impair the company's operations.

The petition asks the court to prevent Fort Collins from selling municipal power plant bonds or taking any further steps toward acquisition of an electrical system before the city council adopts a definite "plan of acquisition."

In attacking the issue, the complaint charges that Fort Collins' plan "is unlawful and invalid because NRA does not authorize the PWA to loan money for municipal plants" and contends that the projected loan is "contrary to the policies of NRA."

•

• Assembly Has Been Started of the first of four electric whirleys to be used in cofferdam construction for the Grand Coulee project in central Washington by the Mason-Walsh-Atkinson-Kier Co. The whirleys will operate on the cofferdam trestle on the downstream side of the cofferdam. Driving of piling is being rushed as the contractors are endeavoring to get the cofferdam in place before the spring run-off of the Columbia river starts. Construction of the 30 engineers houses at the site is expected to be completed in the next few weeks.

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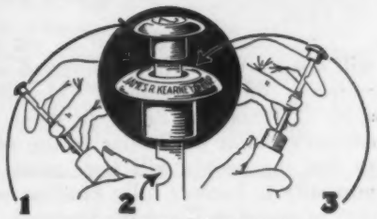

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Triple terminal—spring feature on low amperages—all metal corrosion resistant—accurate performance—one link for all 15,000 volt expulsion or tension type cartridges.

Bulletin 312 Gives Complete Information

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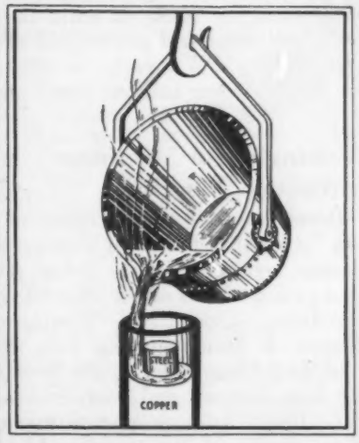

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Seattle Voters May Pass On Utility Purchase

Seattle voters may be called upon soon to register their views as to the proposed purchase by Seattle City Light of the properties of the Puget Sound Power & Light Co. Superintendent J. D. Ross of City Light has stated that he is seriously considering asking the city council to provide for an advisory ballot at the municipal election March 12, 1935.

"I am not fully decided as yet and will not act until I have conferred with members of the Council," Mr. Ross said. "It may be better to defer the advisory ballot until later in the year, so that the people will have more opportunity to become fully familiar with the proposal. We have covered the field outside Seattle in which the Puget Sound Power & Light Co. operates and find the reaction generally favorable to the consolidation plan, but the initial steps must be taken here in Seattle."

•

Sacramento District Seeks to Validate Bonds

Suit has been instituted by the Sacramento Municipal Utility District to validate the $12,000,000 bond issue voted for the construction of an electrical generating and distribution system. The court is asked to declare the bonds valid and to issue a judgment to that effect.

Directors of the district have voted to make an amended application to the public works administration for a loan to construct the proposed system. An application for funds to build the Silver Creek water and power project was approved by PWA early in 1934 but the district never utilized this loan.

•

Westinghouse Meetings Introduce New Line

Dramatic sales presentations of the new "streamlined" line of Westinghouse electric refrigerators are being staged by a group of executives from the merchandising division of Westinghouse Electric & Manufacturing Co., Mansfield, in thirteen cities in the West during late January and early February. J. G. Baird, sales promotion manager, is in charge of the troupe which includes V. E. Vining, domestic refrigerator section; E. H. Culver, commercial refrigerator sales; and C. E. Newcomb, advertising department, all from Mansfield.

In their western presentations the group from Mansfield will be accompanied and assisted by C. A. Meier, merchandising division manager; A. B. Murphy, sales promotion manager; J. G. Miles, Jr., refrigeration supervisor, all of San Francisco; C. H. Kaufman, merchandising supervisor, Los Angeles; C. W. Kaylor, merchandising supervisor, Salt Lake City; and J. A. Clark, merchandising supervisor, Seattle.

Meetings held for distributors and their dealers were scheduled for Phoenix, San Diego, Los Angeles, San Francisco, Sacramento, Stockton, Reno, Salt Lake City, Boise, Portland, Seattle, Spokane and Butte.

•

Northwest Accountants Will Convene in June

Meeting in Portland, Ore., in January, the executive committee of the Accounting and Business Practice Section, Northwest Electric Light & Power Assn., set June 17 and 18 at Portland as the date and place of the annual section meeting.

Among subjects tentatively set for discussion were credits and collections, customer contact, taxes, budgetary control, general statement procedure, internal auditing, classification of accounts, activities of utility security owners' associations, and the securities and stock exchange act.

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• LOS ANGELES Bureau of Power and Light has announced a schedule of improvement work, to be carried on at a cost of $230,735, which started during January. E. F. Scattergood, chief engineer and general manager of the department, announced that the program would include: $119,900 for additions to various distributing stations of the city system; $85,000 for improvement and extension of the low-voltage overhead and underground system; $13,200 for additions to the 33,000-volt overhead and underground system; and $1,200 for special research in connection with the Boulder Canyon power plant.

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• THE VALUATION THEORY followed by the Washington State Department of Public Works in its state-wide investigation of the rates and valuations of private power, water and gas utilities has been upheld by the state supreme court. The validity of the department's theory was challenged by the Winlock Water Co., Inc. In a suit to overturn a valuation fixed for its properties by the department. The Thurston County superior court upheld the department, the supreme court affirming the judgment. The supreme court's ruling marked the first time it has passed upon the valuation method used by the department in its general investigations.

...about the Trade

Maydwell & Hartzell Make Organization Changes

Organization changes involving the creation of separate San Francisco and Los Angeles sales departments, as well as a general department, have been announced by Maydwell & Hartzell, Inc., Pacific Coast factory distributors for electrical construction hardware, equipment, materials and supplies.

Under the new arrangement R. G. Harris becomes San Francisco district manager in charge of all sales activities of the northern California organization.

R. G. HARRIS

Mr. Harris was Pacific Coast manager for Standard Underground Cable Co. from 1920 to 1929 and later was connected with its successor, the General Cable Corp., both on the Pacific Coast and in Colorado. Two years ago he joined the Maydwell & Hartzell organization. He is an engineering graduate of Cornell University and prior to coming to the Pacific Coast was in charge of Standard Underground Cable Co.'s Canadian operations at Montreal, Can.

E. S. Condon is the Los Angeles district manager for the company. The general department under the new organization plan will consist of C. A. Maydwell, president; H. F. Hartzell, vice-president and general manager; Eugene Braun, assistant general manager; H. S. DeLancie, general engineer and R. W. Hall, secretary-treasurer.

•

• SCHWEITZER & CONRAD, INC., has announced the appointment of L. A. Nott & Co., 1061 Howard St., San Francisco as sales correspondent in the northern California territory. Mr. Nott, who has been in the electrical business in the Pacific Coast territory for many years will continue to handle, with the Schweitzer & Conrad line of protective equipment, the products of the Sangamo Electric Co. He was formerly with the old Standard Underground Cable Co.

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• CHARLES CROFT, district manager of Railway & Industrial Engineering Co., recently announced the moving of his office from 2450 Hunter St., Los Angeles, to 357 South Hill St., Room 701.

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• WILLIAM P. SWARTZ, Pacific Coast sales manager for the Standard Electric Stove Co., has been appointed Pacific Coast sales manager for the Elgin metal kitchen cabinets, manufactured by the Elgin Stove & Oven Co., Elgin, Ill., and for the Conover dishwashers, manufactured by the Conover Co., Chicago. Mr. Swartz will cover the seven Pacific Coast states for all three of these organizations.

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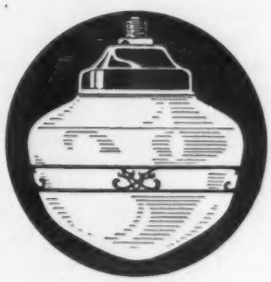
• GRAYBAR ELECTRIC CO., INC., has become the franchised distributor of Leonard refrigerators in the Los Angeles and San Francisco districts, according to an announcement by Sales Manager G. Strelinger, of Leonard Refrigerator Co.

•

• CENTURY ELECTRIC CO., formerly at 822 Standard Oil Building, Los Angeles, recently moved to 1855 Industrial St., Room 310, Los Angeles.

STEP UP WATTAGE and PROFITS
with this SMOOT-HOLMAN Unit Light



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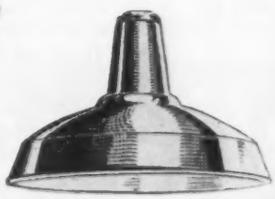
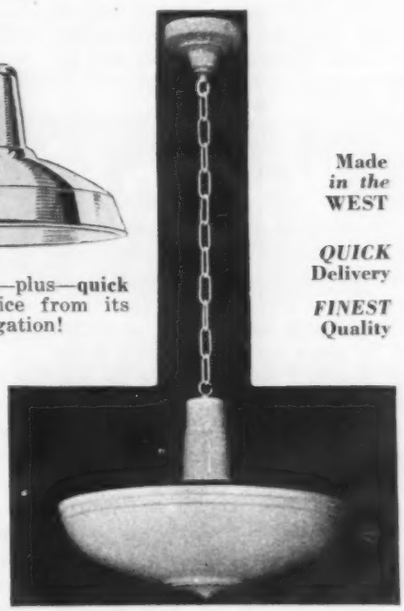
for KITCHENS *and* BATHROOMS

Screws into **existing** lamp sockets therefore lends itself to quick demonstration **at the point of sale.** Metal Holder . . . of superior porcelain enamel—white or colors. Globe . . . white or decorated green, orchid or black. A leader for volume sales.

Quality meets most severe standards



This 'SIGHT-CRAFT' industrial unit gives ALL that any unit can give in durability, efficiency, appearance and cost—plus—quick delivery and engineering service from its WESTERN plant. Worth investigation!



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FINEST Quality

This* SIGHT-CRAFT *unit is going places!

Yes, indeed! This 'APOLLO' Luminaire is 'crashing through' because of its incomparable appearance and efficiency. Has white interiors and ivory exteriors. Reflectors and hoods are of finest enameling iron on which is fired 3 coats of Vitro-Lux at 1600° F. An outstanding value in "seeing efficiency."

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SEATTLE—J. Edwin Roberts, 532 First Ave. So.

...about People

Death Calls Graybar Merchandise Manager

Harry C. Goldrick, merchandising manager of the Los Angeles office of the Graybar Electric Co., died Jan. 9. He was 56 years of age. His death followed an extended period of illness, during the last five weeks of which he had been confined to the hospital.

Mr. Goldrick was born in East Brady, Pa., May 1, 1877. He attended Purdue University and also studied civil engineering prior to entering the electrical field. From 1905 to 1915 he was connected with the Kellogg Switchboard and Supply Co. and held the position of sales manager at the time he decided to cast his lot with the Western Electric Co. in its sales department at San Francisco. Later in the same year he moved east to the general telephone sales department at Hawthorne, Ill.

In 1916 he was sent to Chicago, in 1917 he moved back to the general department in New York and in 1918 he was transferred to Syracuse. He managed the office there until 1922 when he moved to Los Angeles. In 1923 he was appointed merchandising manager, a position he held until his death. He was an active figure in electrical affairs in southern California, having served in various committee capacities in the Pacific Coast Electrical Bureau and in the Los Angeles Electric Club.

●

G. E. Supply Shifts Managerial Posts

Promotions and re-assignments of duties in the San Francisco, Oakland and Los Angeles districts of the General Electric Supply Corp. were announced by Vice-President Dave E. Harris beginning Jan. 1.

Fred J. Airey was transferred from the Los Angeles district where he has been district manager since 1917 to become assistant to Vice-President Harris in San Francisco. Mr. Airey, born in New York, educated in Buffalo, was first associated with American Electric Supply Co. at Buffalo which was later consolidated with F. P. Little Electric Co. In 1911 he entered the employ of Pacific States Electric Co. and became district manager in 1917.

Fred C. Todt, district manager in San Francisco, was transferred to Los Angeles to become district manager there. Mr. Todt was born and educated in San Francisco and his first electrical experience was as a railroad telegrapher for Southern Pacific Co. In 1906 he became associated with Western Electric Co., San Francisco, as warehouse clerk and later on the road in a sales capacity. In 1911 he became a salesman in Portland for the Pacific States Electric Co. and was later transferred to the Los Angeles office for a short period and then made district manager of Pacific States Electric Co. in San Francisco in 1922.

Eugene W. Garcia, who has been assistant to D. E. Harris, was transferred to Oakland as manager of the Supply Corp. there. Mr. Garcia, who has been with the General Electric Co. and Supply Corp. for 25 years, was born in San Leandro, educated in public schools of Alameda County and University of California. He joined the staff of General Electric Co., San Francisco, 1910 and became associated with Pacific States Electric Co. in 1920, heading up the lamp department. In 1929 he became assistant to Mr. Harris.

Charles W. Goodwin, Jr. was promoted to district manager in place of Mr. Todt. Mr. Goodwin was born and educated in San Francisco and joined the Pacific States Electric Co. in March, 1910. He was later made district credit manager in 1916, which position he maintained until 1930. In 1930 he was made district sales manager of the General Electric Supply Corp., from which position he was promoted to that of district manager Jan. 1.

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• FRANK R. DEVLIN, San Francisco attorney, has been re-appointed by Governor Frank F. Merriam for the full six-year term as a member of the California Railroad Commission. Mr. Devlin, who served on the Commission during Hiram Johnson's gubernatorial regime, was re-appointed to that body by Governor Merriam in October of last year to succeed Clyde L. Seavey. Leon O. Whitsell has been re-elected president of the Commission for the year 1935. He has been a member of that body since 1925.

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• TOBEY YOST, for more than 17 years Pacific Coast manager of the Trumbull Electric Manufacturing Co., has established a manufacturers' agency known as the Henry F. Yost Co., 1264 Folsom St., San Francisco. The company will represent and warehouse a number of nationally known electrical lines in the northern California territory. One of the lines represented is the floodlighting equipment of the S & M Lamp Co., Inc., of Los Angeles.

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• CLARK H. MINOR, president of the International General Electric Co., New York, spent some time on the Pacific Coast last month prior to returning to his headquarters from a trip to the Orient.

• NORMAN G. REINICKER, general manager of the Pennsylvania Power & Light Co., Allentown, Pa., spent several weeks on the Pacific Coast recently. He returned to the East by way of the Panama Canal.

CHROMALOX

REPLACEMENT RANGE UNITS

Bring Old Ranges Up-to-Date

and give range owners a new conception of the convenience and speed of electric cooking. Many power companies offer free trial of these units—and sell the set easily, building up the power load and, in many cases, preventing switching to other methods of cooking.

We have an easy resultful sales campaign. Ask your nearest representative. Write today.

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Portland Electric Club Installs New Officers

Induction of officers who had been elected December 20 took place at the luncheon of the Portland Electric Club on January 10. The chief speaker at that meeting was Franklin T. Griffith, honorary member of the club. Mr. Griffith had just returned from the East where he had gathered many impressions as to the state of the nation.

The new officers are as follows: President, Y. C. Bressie, Bressie Electric Co., electrical contractor and dealer; first vice-president, Walter E. Potter,

Y. C. BRESSIE

incandescent lamp department of the General Electric Co.; second vice-president, W. A. Kenney, Ramsey Sign Co.; secretary, F. Earl Davis, Westinghouse Electric Supply Co.; treasurer, J. W. Wisdom, Jr., Northwestern Electric Co.; sergeant-at-arms, George Kelly, Portland General Electric Co.; Executive committee members at large, Orr Crites, Portland General Electric Co., Fred Zaugg, North Coast Electric Co., E. F. Pearson, Northwestern Electric Co., retiring president, remains on the executive committee. Berkeley Snow was appointed executive secretary.

The Portland Electric Club now has 135 members. Every effort will be made by the incoming administration to increase this membership as well as raise the average attendance at meetings.

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S. F. Contractors Name J. Carlson President

AFTER an election of Officers replete with interest and speculation, and for which a record turn-out of the Association was present to cast its ballot, Joseph Carlson, Central Electric Co., San Francisco, was named president of the San Francisco Electrical Contractors Assn., Inc., Dec. 28. George Draeger, Draeger Electric Co., was named vice-president; Edward Martin, veteran of the position, was returned to the secretaryship after a year's relief, succeeding Ken Ryals, Stone-Ryals Electric Co. C. B. Kenney, NePage-McKenny Co., was re-elected treasurer. The board of directors, in addition to the officers, includes Charles A. Langlais, who made a spectacular record as president of the Association last year; H. C. Reid; L. J. Douat, Buzzell Electric Works; Ed Conroy, Collonan Electric & Manufacturing Co.; Sam Radelfinger, Radelfinger Bros.; Victor Lemoge; and Lloyd Flatland, Globe Electric Works, who is chairman of the 12th Region, Code Authority for the electrical contracting industry.

Although an appointed body, the list of officers and members of the board of operation was submitted to ballot. After the election those selected were appointed by the new president, Mr. Carlson. The board of operation is chairmanned by Clyde L. Chamblin, California Electrical Construction Co. and former president of the national association. Frank F. Goodman is vice-chairman and C. C. McLean, Paragon Electric Co., is secretary. The remaining members of the board of operation include R. W. Griffin, Scott-Buttner Electric Co.; Seth Butler, Wiedenthal-Gosliner Electric Works; Charles H. Shipman, Atlas Electric & Engineering Corp.; A. L. Biber, Eureka Electric Co.; L. A. Delatour, Delatour Electric Co.; James Galvin, Galvin Bros. Electric Co.; Charles X. Schmitt, Superior Electric Co.; William Weindorf; Ike Fross; A. T. Lipscomb, Economy Electric Co. and Ed. Brumfield, Brumfield Electric Sign Co.

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• GORDON DAVIES, proprietor, Davies Electric Co., recently announced a move from 1328 West Glenoaks St. to 640 West Borchett St., Glendale.

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McGraw Award Given to Buck in Big Rally

". . . As president of the Rocky Mountain Electrical Association he saw possibilities of creating a broader influence upon public opinion and developing a more intensive merchandising operation within the industry by coordinating the sales activities of electrical men throughout the entire area served by that organization. By his vigorous and stimulating leadership and the example of his own success in load building in Denver, he aroused the enthusiasm and confidence of the industry and won their cooperation in a program of promotion and marketing to sell the electrical idea and increase the volume of the electrical business throughout the states of Colorado, Wyoming and New Mexico. In some 60 communities the dealers, contractors, wholesalers and utilities combined their efforts and fired with his enthusiasm and sincerity staged an Electrical Sales Rally that ran the cycle of the season, capitalizing the dramatic appeal of electric service in a series of campaigns that featured modern lighting, as well as the principal appliances and market opportunities . . ."

The citation, James H. McGraw medal and purse "in recognition of . . . constructive contribution to the advancement of cooperation in the electrical industry" were tendered to Gaylord B. Buck, general commercial manager of Public Service Co. of Colo., Jan. 24, at a complimentary banquet in Denver where Colorado's Governor Edwin C. Johnson and business dignitaries from various parts of the nation were assembled. George C. Tenney, editor of ELECTRICAL WEST, representing the McGraw committee on awards, presented the symbols which bestow one of the highest honors within the gift of North America's electrical industry.

E. E. Brazier, local manager of the General Electric Supply Corp. and newly elected president of the Electrical League of Colorado, acted as toastmaster for the occasion. He was introduced to the 250 banqueters by George E. Lewis, executive secretary of the Rocky Mountain Electrical Assn. Prior to the presentation ceremonies laudatory speeches were made by Gov. Johnson; R. E. Burger, vice-president and general manager of Cities Service Power and Light Co.; Guy W. Faller, vice-president and general manager of Public Service Co. of Colo.; W. D. Johnston, manager of the Mountain States Power Co., Casper, Wyoming; V. L. Board and John E. Loiseau, general superintendent and secretary, respectively, of Public Service Co.

Mr. Buck's response to Mr. Tenney's presentation speech pledging continued and constructive cooperative activities on the part of himself, the utility of which he is an executive, the Rocky Mountain Electrical Assn., received a memorable ovation.

Telegrams from industry leaders in all sections of the United States continued to pour into the banquet room during the evening, congratulating the man who (to further quote the citation:)

—through his unflagging energy and zeal, sound judgment and wise counsel —made himself the welcome and acknowledged leader in electrical development for this broad region and— established a spirit of devotion to a common progress that holds fine promise for continuing benefits—."

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P. F. Diehl Returns to Coast With Phelps-Dodge

With his appointment by Phelps-Dodge Copper Products Corp. as their representative for Northern California, Peter F. Diehl finally returns to the city

P. F. DIEHL

of his birth after many years of electrical service on both sides of the globe.

Mr. Diehl's first position was with the Western Electric Co. supply department, (now the Graybar Electric Co.) in 1906. After 11 years in the San Francisco and Los Angeles offices he went to Honolulu early in 1917 with the Hawaiian Electric Co. Less than a year later he returned to the mainland to enlist in the 37th Engineers with whom he served overseas and on the Rhine.

The war over, he returned to Honolulu, but left shortly to enter the employ of Catton & Neill (now Ramsey & Co.) in Manila. After several years in the Philippines and Far East, he again entered Graybar employ as central station salesman in the New York office.

After five years in this phase of the business he returned to the Pacific Coast, and now is making his headquarters with the Graybar's San Francisco house. Graybar has always handled Habirshaw rubber and lead wires and has now been appointed agent for Phelps-Dodge weatherproof and bare copper wires as well, carrying stocks in all branches on the Pacific Coast.

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Chet Dye Heads Junior Cookery Council

Chester H. Dye, range sales supervisor of the Bureau of Power and Light, Los Angeles, was named president of the Junior Electric Cookery Council, of Los Angeles, at its meeting in December. William Krueger, Estate Stove Co. and well known to the dealers of that region, was made vice-president. The installation of officers took place at the annual Christmas party of the council.

Other officers installed were: Vernon B. Sheblak, Bureau of Power and Light, recording secretary; Robert Mead, city of Burbank, corresponding secretary; Louis Singleton, Listenwalter & Gough, treasurer; Lloyd Bowles, Southern California Edison Co., sergeant-at-arms; Orlando Hammond, Desmond & Hammond, and William Schenk, Schenk Specialty Co., dealer representatives; Hal Collins of Barker's downtown store, and Hart Price, of Manual Arts Sales Co., salesman representatives.

Presentation of a gift pencil was made to Mr. Hammond in appreciation of his services as the council's president during the past year.

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Power Transmission Engineer To Visit Coast

Victor A. Hanson, engineer of the Power Transmission Council, will tour the Western states during February and March for the purpose of inspecting Western industrial plants and addressing organizations interested in power transmission problems. Mr. Hanson is a recognized authority on group drives and power transmission economies. Under his direction, 56 Power Transmission Clubs have been organized and trained to provide engineering service in the industrial centers of the country. During his visit, Power Transmission Clubs in the various Pacific Coast cities will be his hosts. Engineering groups in the West interested in attending the meetings at which Mr. Hanson will speak may secure information on his itinerary by communicating with H. Nelson Cook, 401 Howard St., San Francisco.

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• J. S. ALLAN, safety supervisor of The Nevada-California Power Co. and associated companies, was elected president of the California Safety Society, Southern Division, at a recent meeting in Los Angeles. He had served as vice-president for the year previous.

...in New Equipment

G-E Secondary Network Protector

General Electric Co. has announced a new type of secondary network unit consisting of a three-phase, subway-type transformer and a submersible-type, light-duty network protector. These units are available in ratings from 45 to 150 kva. and they extend the field of application of secondary network systems to areas of lower load density than heretofore practical. The new models are compact and may be installed in very small manholes. They perform their functions in essentially the same manner as the heavier-duty devices previously available. The breaker is equipped with compression-type arc interrupters and an a.c. solenoid-operated, trip-free operating mechanism. The relays are of the new induction-cylinder design recently developed for use in network protectors. Light-duty protectors of like ratings have been announced for separate mounting in manholes, in building vaults or on poles.

•

New Switch Box Design

A slotted opening in the center of the knockout to facilitate its removal simply by inserting a screwdriver, without the necessity of using the hands or another tool, is a new feature of the outlet and switch boxes of the National Electric Products Corp., Pittsburg, Pa. The product carries the trademark "Centr-pri." Each National box is now designated with a red edge around its top edge (trade marked "Redege") to identify the box as having met Underwriters Laboratories testing standards. This facilitates inspection.

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New Breaker and Expulsion Contacts

An expulsion oil circuit breaker has been announced by the Pacific Electric Manufacturing Corporation. The breaker retains the horizontal multi-break principle with which is incorporated recently developed arc quenching devices that greatly reduce arcing time, contact burning, and oil deterioration, according to the company's report. The new breaker is available in standard ratings from 15,000 to 287,000. Expulsion contacts are also available for installation in Pacific breakers already in service. Installation of these devices is said to increase the interrupting capacities and greatly reduce maintenance expenses.

Modern Design for 30-Amp. Switch

Modern design has been applied to a new 30-amp. safety switch introduced by Cutler-Hammer, Inc., Milwaukee. Listed as standard by the Underwriters' Laboratories, the new switch is adaptable to a wide variety of installations. Small size is a feature, the switch being 3½ x 5½ x 3½ in. To facilitate wiring the complete mechanism can be removed by loosening two screws, the wires pulled through and the mechanism replaced. The toggle mechanism, front operated, is double pole, positive make and break, and the switch is of the fusible type. The operating lever has been made of a special arc resisting laminated horn fibre. The switch is finished in black baked enamel with cadmium trim.

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Lightweight Power Capacitors

Westinghouse Electric & Manufacturing Co. has announced a new line of hermetically sealed power capacitors about one-half the size and one-third the weight of the conventional oil-filled units. The individual units are impregnated with the new Westinghouse fireproof impregnating medium, "Inerteen," to secure weight reduction. They are housed in welded steel cases and individual units are assembled in newly designed welded racks, frames or cabinets for any sort of mounting. Because design is based on standard component parts practically any size capacitor is available from 5 kva. at 230 volts up to 1,200 kva. at 6,900 volts.

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Turbo-Blower

Introduction of a new, compact centrifugal compressor (turbo-blower), making use of a gearmotor, has been introduced by the Allis-Chalmers Mfg. Co., Milwaukee, Wis. By using the gearmotor for speed increase, the advantages claimed are twofold; namely—a blower that can be run at higher than motor speed and with much better performance. Application of the unit is recommended for oil and gas furnaces, pneumatic conveying, agitation and aeration, and similar low pressure air or gas supply services.

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Norge Announces 1935 Refrigerators

Norge Corp., Detroit, has announced its 1935 refrigerator line consisting of eleven models, ranging in size from 4.25 cu. ft. to 11.17 cu. ft. and priced from $119.50 to $369.50 f.o.b. Muskegon, Mich. This is exclusive of a chest type model with a capacity of 2.31 cu. ft. The former DeLuxe line with its rounded corners and perpendicular lines has now become standard and is available at competitive prices. Norge also is introducing a new line of kitchen ranges, both gas and electric.

Modern Design For Washers

Modern design has been applied to the 1935 washing machine line just announced by the Apex Rotarex Manufacturing Co., Oakland. The striking appearance of the new models is illustrated by the DeLuxe model. Agitator action for which the Apex double dasher is employed is controlled by a pedal located just above floor level. The washing period may be set automatically by a timer attached to the wringer column. Discharge of waste water is controlled by a pedal situated close to the floor line. Safety provisions include a grounded filler hose, an interlocking wringerhead, and finger tip release on wringer rolls. The complete Apex line includes seven models, three of the wringerless type and four with wringer. The latter may be had with or without motor driven pump. Prices range from $159.50 down.

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Trade Literature

TRANSFORMERS for instrument and metering service are described in catalog No. 152 just issued by the Allis-Chalmers Manufacturing Co., Milwaukee. The catalog describes the complete line of indoor and outdoor current transformers and indoor and outdoor potential transformers as well as the outdoor metering outfits manufactured by the company.

MANY NEW DEVELOPMENTS are listed in catalog No. 21 just issued by the Ohio Brass Co., Mansfield. The new catalog incorporates a section finder which materially increases its usefulness. Among the new developments which it lists are the newly designed O-B pin-type insulators, the new one-piece insulators for use on line sections where breakage is frequently experienced due to shooting and stone-throwing, a new line of strain insulator fittings and an improved line of suspension insulators.

SWITCHGEAR including metal clad units, control panels, switch houses and cubicles is described in catalog No. 8 just issued by the Roller-Smith Co., New York. Largely pictorial, the catalog shows the wide variety of equipment available through this company.

RELAYS ARE THE SUBJECT of a new series of bulletins just issued by the General Electric Co. No. 1997 describes instantaneous overcurrent relays, types PHC and PYC. No. 2006 is devoted to auxiliary relays with mercury contacts. Directional ground relays are described in No. 2009. Transfer relays for current transformer tripping are the subject of No. 2012 and No. 2014 is devoted to current balance relays.

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